

March, 1991

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# BOARDWATCH

MAGAZINE

Electronic BBS and Online Information Services

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"POWERSHIFT: Knowledge, Wealth and Violence in the 21st Century."



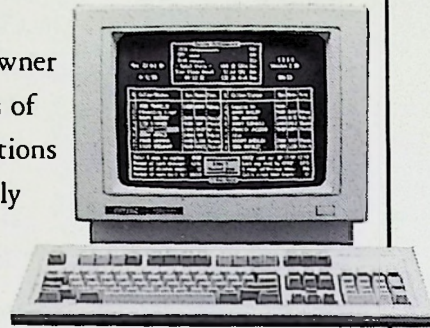


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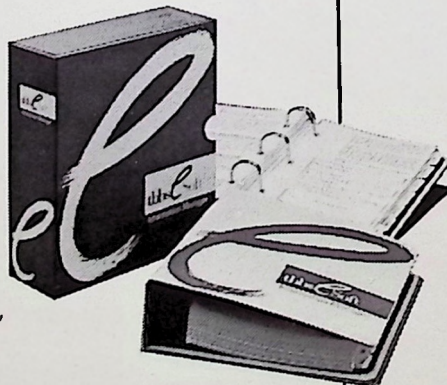
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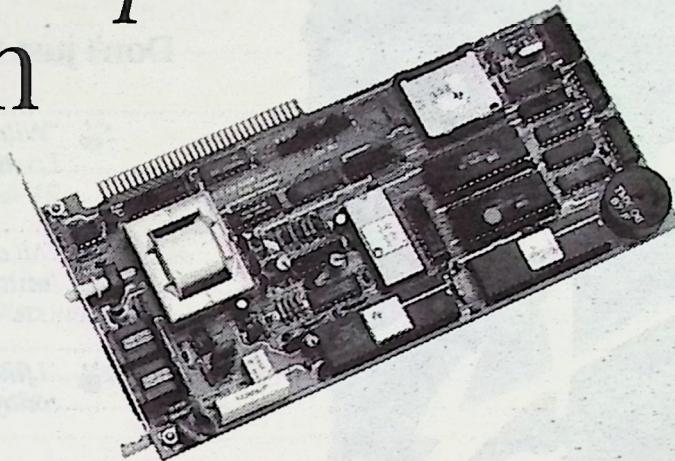
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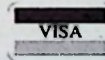
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## EDITORS NOTES

This issue marks the anniversary of our fourth year of publication. Most of our readers think of Boardwatch as a "new" publication and it may offer some surprise that we've been following the online world this long. A recent survey of monthly periodicals indicates approximately 500 new publications begin life each year and slightly over a third survive four years of publication. We're naturally pleased you've decided to place us among the survivors. In reflecting on the ever rising avalanche of printed matter inundating us all, it actually is something of an honor to be allowed to slay a few more trees on your behalf. That we continue to prosper, and that at the same time we're still almost entirely unknown, provides a testimony to your continued avid interest in the fascinating and in some ways historic developments in the online world, as well as an indication that we're perhaps somewhat better suited to producing a publication than we are at marketing one. We'll try to spray you a bit more with appeals for subscriptions etc.,.....when we can get to it.

Our March 87 issue contained several reviews of BBS, a discussion of file transfer protocols, and some reviews of communications shareware. In one sense, we've held remarkably true to our original course. The magazine looks a bit different. Our audience is more national, and I suppose with readers in 56 countries now even more global, than we initially envisioned. But our basic premise that BBS would one day provide a very rich medium for individual expression has developed very nicely. The concept of operating BBS systems for profit brought us many guffaws and knowing chuckles in response in those days - many fewer today we might note.

Alvin Toffler rarely appears in interviews. An interview did appear in Newsweek a few years ago and

they put him on the cover. In this issue, Nick Anis brings us some very interesting insight into this man and his views on the future. Toffler's current book, *Powershift: Knowledge, Wealth, and Violence at the Edge of the 21st Century*, continues the tradition of *Future Shock* and *The Third Wave* in peering into our economic and working future. Much of our current online paradigm involving telecommuting, working from home, and the growth in online services was reflected and summarized in Toffler's earlier works. These type of books don't so much divine our future as they do summarize and clarify the trends shaping us now. These can be difficult to recognize while we're within them and only gain the names, labels, and symbols needed to discuss them when viewed backwards FROM the future. A written history of what happened also inherently includes the glossary of what to call things that did happen. Toffler seems to have the unique ability to perform some of this sifting and synthesis very close to the present - enabling us to grapple with issues we wouldn't ordinarily even be able to name for several years. Toffler's new book shows what really is happening in the conversion to a service based economy - debunking the hamburger flipper myth - and examines in detail what information and an ever more symbolic monetary and economic world will mean to each of us. We are most pleased to bring you this interview. Not to be outdone by Newsweek, we put him on the cover as well.

We also appreciate our election again this year to *Microtimes* Magazine's list of 100 Most Influential people in the Microcomputer Industry. The online world is gaining more recognition it would appear. Dave Hughes, of Old Colorado City Communications, who frequently provides invaluable technical advice to us here at Boardwatch, was also listed as well as Mitch Kapor and John Perry Barlow of the Electronic Frontier Foundation - founded in 1990 to protect civil liberties in the online world. Jim Button, author

of the popular shareware package PC-File was also listed as well as Cliff Stoll, the astronomer turned Unix detective who chased down a 75-cent billing error on the Lawrence Berkeley Lab computer to find a group of West German hackers and subsequently wrote Cuckoo's Egg.

The Desert Storm situation has given rise to its own "Online Storm" of electronic debate. Our view? We knew George Bush had better sense than to involve us in an area of the world where the common man views all things in materialistic western society as the direct work of Satan. We were wrong.

We were sure he realized that these desert Bedouin families had been fighting over these same forlorn sand dunes for about 10,000 years and would likely continue for another 10,000 more or less with or without our direct participation.

We were sure that once he had actually committed us militarily, he would seek a decisive and immediate military victory and then get the hell out of there quickly before the entire Arab world had a chance to realize it was over, and now safe from Hussein, band together against the Satanic forces of the west - i.e. us. Suddenly we are hearing serious talk about a "New World Order" coming in the post war period - a final solution to the "Middle East Situation."

Hal Lindsey used almost those same words in his book *The Late Great Planet Earth*. This was a fundamentalist religious book of Biblical prophecy widely regarded as ridiculous when we read it in the mid-seventies. Not so ridiculous now. It described a man who established a "New World Order" to settle the middle east situation. It lasted for a few years - then exploded into a free-for-all wiping a third of life from this planet.

I'm not a peace activist. I have no problem at all with the direct application of military force to further our own national interests. Despite the obviously tragic re-



sults for many individuals, I even view war as a necessary part of life on earth with the likely purpose of genetic paint mixing - quite necessary for survival. I've been in the military. I've mixed some paint. I've visited the Gulf on four Indian Ocean cruises on the USS Midway and wandered the streets of Kirachi, Bahgdad, and Riyadh myself - speaking and learning from a culture very, very different from my own. I was not particularly surprised to see CBS television Mike Wallace's interview of Iranian veterans who were victims of years of torture at the hands of Saddam Hussein during the Iran/Iraq war. Despite some fundamental problems with the logic of the situation, these unfortunates were utterly convinced that somehow the evil United States forced Hussein to do it.

And I cannot identify with the west coast airheads that view organized protests of war, whales, oil, acid rain, and an ethereal rise in world temperature basically as a cheap date with a long shot at getting on TV. Their shrill cries of media propaganda and incessant insouciant chanting of wildly dubious statistics remind me curiously of herd animals milling around mindlessly before a lightning storm. Nothing of value can come from such Californication of this issue.

I admire the many stories of personal sacrifice, valour, and fortitude this war is bringing out and I support these young Americans in a battle I'm confident we will win militarily in that region. I'm impressed with Colin Powell and Norman Schwarzkopf, and justifiably proud of the technically excellent performance of our technology.

But I fear a race of young boys growing up with fathers killed by the "Satans from the West" - who view it as a holy and religious obligation to seek revenge. I fear the numerous uprisings and political shifts among the inherently fragile Arab leadership in many nations in that area caused by this war and our presence. I fear a coming role for America as "most hated nation"

in this region of the world. And I fear that an American governmental leadership that cannot develop a rational tax system, balance their own checkbook, or educate my children to the level a handful of impoverished nuns educated me, may understandably not be quite up to the task of recognizing all the nuances of warring cultures that are not two hundred years old, not two thousand years old, but who have been locked in a more or less continuous struggle since the birth of human civilization. And personally, if the Jews want to go over there, carve out some real estate, and scrap with those people for the next 10,000 years, I say they all deserve each other in spades.

But I do have to ask if our leadership would consider our presence there quite so imperative had Kuwait been known as the principle exporter of Broccoli in the world. I have to ask why three quarters of the marginal oil wells in Texas have had concrete poured down their throats over the past ten years. I have to wonder, if oil was so important, why half the rig crews in Texas wound up hawking bird at Church's Fried Chicken and Blue Light specials at the K-Mart.

The bottom line - I support this war because we're in it. And I'm confident we'll survive it. But I do have some rather disturbing fears about its aftermath. I'm not at all comfortable with the concept of the "New World Order." I strongly favor getting in, making our "Z" in the sand, and getting out.

If you enjoy such debates, there are a couple of options. We've been inundated with inquiries regarding where the "best" conferences are regarding Desert Storm. True to form, the WELL in Sausalito is sporting some pretty fiery debate - about 20 messages an hour - on this topic and we found a significant percentage of the traffic lucid. They recently raised their monthly fee to \$10 and lowered their hourly fee to \$2.50. You can reach them at 415-332-7190 by modem. The particular conference of interest is titled GULF. The Usenet News Group alt.desert-storm is also

## **Boardwatch Magazine**

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carrying between five thousand and six thousand messages entered in the last 14 day period.

Also in this issue, we begin to peer a bit more deeply into "The Internet." This network of networks connects thousands of university and research sites together. Because of the increased access to it, increased capacity and function of it, and the current bills in the House and Senate to fund a National Research and Education Network (NREN) - a 3.4 Gigabit data highway that will largely remake it, Internet may become a key element of our future online. Over the next few issues, we'll try to bring a touch of clarity to the somewhat inscrutable Internet.

**Jack Rickard**  
Editor



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## LETTERS TO THE EDITOR

---

Jack:

Could you provide instructions for finding the Grolliers Encyclopedia? Do you have a list of back issues and the subjects covered in those issues?

If you would like, my toll-free 800 BBS number is available but please do not publish or give this number to anyone - the exception to that is anyone working in dental offices. My system is for dental products and information - dental offices only.

Don Carlson  
Manteca, California

Don:

The Colorado Alliance of Research Libraries (CARL) operates a large Tandem computer system at 303-863-1350 containing over four million citations to holdings in virtually every library in the state. They also offer Grolliers online. The service is free of charge although they are gradually adding some ala carte fee services. The hitch - to access Grolliers, you now must enter a library card number. The service, once totally free, is now limited to card carrying members of one of the alliance's public or university libraries. We understand, strictly from rumor, that a large commercial online service threw a fit when they found it was available freely on CARL. Grollier in turn demanded CARL restrict the encyclopedia at least to library card holders, thus mollifying the commercial interests.

We do provide an index to back issues on the **Boardwatch Online Information Service** at 303-973-4222. It provides full text of all issues back to January 1988 and a keyword search database on article titles. You may extend your existing print magazine subscription

to include access to the online service at an additional \$35 yearly. Printed back issues of Boardwatch are also available at \$5 each.

A dental services and products BBS sounds utterly fascinating. Watch for our coming special advisory titled "How to Promote and Market Your BBS by Declaring the Telephone Number a Secret". Have you heard of **Dentistry Today BBS** in Duluth Georgia? They rather incautiously published their number at 404-587-2362. Edward Del Grosso of Newark Delaware also runs a system at 302-731-1998 and maintains a list of BBS covering medical issues generally.

Those with an interest in things that go click in the mouth can contact Mr. Carlson by voice at 209-823-1548 to obtain the magic number. - Editor

Dear Boardwatch Magazine:

I would like to thank you for publishing your review of **ShowGIF** in your magazine. I really appreciate the publicity that you have given my program. In your review you raised several problems with my program that I would like to address at this time.

1) Support of the **TSENG 4000** chipset: Support was added for **TSENG 4000** in version 5.1b. It has been tested on this setup.

2) Crippling: In retrospect, I have realized that this was a terrible mistake. At the time, I thought that this would encourage people to support it. After many complaints, I have decided to release a full version within maybe a month.

3) The ASP logo: Nowhere in the documentation is there an ASP logo. I am not affiliated with the Association of Software Professionals. They should not have to answer for anything I have done.

4) Telephone Support: I am a college student, which means I might be one place one year and in a different place the next. Once you receive the program, the voice

number that I have provided may belong to someone else. The board that I given in the documentation has been very stable without being especially busy. Unfortunately, it is long distance for me and my limited finances prevent me from responding to mail more than 2 to 3 times a month.

5) The **ShowGIF 4.1** Documentation: I didn't really mean to insult anybody by the negative views of shareware in it. I never anticipated it to spread as much as it did.

In all, it was wrong for me to try to "switch horses in the middle of the stream." It is difficult to describe how fulfilling it is for me to see something of my creation become as popular as it has, and wrong of me so blatantly to attempt to capitalize on it. Please publish this to inform your readers that I am trying to improve the situation and I thank those who have bared with me through all this.

Thank you.  
Bill Parquet  
30231 Bates Road  
Perrysburg, OH 43551-3827

Bill:

Thanks for the letter. As we noted in our February issue review, **ShowGIF** is a particularly elegant program allowing callers to view graphics files in CompuServe's Graphics Interchange Format (GIF) onscreen WHILE they download them from the local BBS. As a TSR, it works with ANY terminal program. It actually makes GIF graphics files part of the interactive process online.

I don't particularly agree that it was "wrong of you to so blatantly attempt to capitalize on it." Quite the contrary. I hope you make a million bucks in reward for your hard work and this elegant technical innovation you've contributed to the online world. But there are ways and then there are ways. See ASP Board Member Rob Rosenberger's editorial in this issue on marketing shareware. I would urge you to contact them to find out how to maximize your abil-



ity to capitalize on ShowGIF - while still giving the online public a fair shake.

As you know, I'm not in favor of releasing software as shareware, taking advantage of the free distribution mechanism of the online world, and after callers have downloaded a program, then springing the news that it doesn't work on their machine - by design - until they fork over the cash. This is commonly known as "crippling". I'm against it, and those successful in shareware tell me it doesn't work anyway. But I hope all users of ShowGIF register their product and that you enjoy a rewarding career producing software. If you can do this program while still in college, I have to wonder what's in store for us if you receive enough financial encouragement to continue such development full time. ShowGIF is now available in uncrippled form in version 5.2b as SHWGIF52.EXE and we are most pleased to report that it operates superbly with the STB PowerGraph using the TSENG 4000 video chipset. - Editor

Dear Mr. Rickard

I am a recent subscriber to Boardwatch and one who is just graduating from business use of his Macintosh to enjoyment and exploration of the world of BBS's.

In talking with my community librarian, I mentioned the possibility of the library's sponsoring a community bulletin board. She had seen something like it at a librarian's convention but had no details. None of the systems mentioned in the list at the back of the December issue seem to be community BBS (operated by an agency of a city or county). I would appreciate the name(s) of any communities which have started community BBS's. Any contact persons, phone numbers, etc. would also be appreciated.

I would have contacted you via modem, but I'm still at 1200 baud and your hookup seems to require

2400. I've ordered my new modem already so this may be our last communication by mail.

Thanks for any help you can provide.

Community Action Services  
Steven J. Weinberg, Director.  
East Brunswick, New Jersey

Mr. Weinberg:

Congratulations on your graduation from "business use" to the wider world of the online community. It's a bit like the famed roach motel - once you're in, there's no way out and you will have to drop from the bowling league I'm afraid.

Libraries are proving, to my personal surprise and delight, to be among the most active participants in the move to an online community, and in many ways among the most accomplished. Most guardians of an existing structure, particularly with any relationship to government, tend toward protecting the status quo. New technology normally doesn't become "their idea all along" until much later - usually about three years after it became "inevitable." The education community is struggling desperately with this right now but I am delighted to note that libraries, across the board, are in many cases actually leading the charge.

The previously mentioned C.A.R.L. service is on the verge of becoming global, but probably the majority of University libraries are now online as well along with many in the Federal library system. See our story on Internet in this issue and the related list of University Libraries.

Communities in the city government sense have been somewhat slower to adopt the system although the application is a bit obvious. I could give you a few names of those who have put up city government BBS, but I think I'll pass to prevent you from falling in with bad company.

The closest thing we've found to a true "community" online service originated in Cleveland Ohio as a single line medical BBS titled *St. Silicon's Hospital and Information Dispensary* started in the fall of 1984 by Dr. Tom Grundner of the Department of Family Medicine at Case Western Reserve University School of Medicine. It's original mission was to answer medical questions from the community online. With the assistance of a grant from the Information Systems Division of AT&T, and Ohio Bell Telephone, it grew to become today's *Cleveland Freenet* at 216-368-3888 (at least 32 lines) and it is in fact included in our list. They are also available via Internet's telnet login as "freenet-in-c.cwru.edu". The service offers political forums including access to state and local political leaders, their voting records, special interest areas on a variety of community subjects, the full text of U.S. Supreme Court Opinions, and yes, even access to the local Cleveland Metropolitan Library System. It is undoubtedly the premier example of a community paradigm online that has in fact succeeded beyond anyone's expectations.

Even better, the last time I spoke with them, they actually offered the software they developed for this system to other communities interested in starting such a service at the amazing cost of ONE DOLLAR. The original system operator is now Director of the *Community Telecomputing Laboratory* and is very interested in helping other communities start online services. If the precise system they run is not what you're looking for, I can think of no one more in touch with what IS going on in city services than he. Dr. Tom M. Grundner, Director, Community Telecomputing Laboratory, Case Western Reserve University, 319 Wickenden Building, Cleveland, OH 44106; 216-368-5121.

One final note, all services listed in Boardwatch indicate the HIGHEST modem speed the service can provide. Virtually ALL modern modems have the implicit capabil-



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ity to connect at LOWER speeds such as 1200 bps although some systems do limit 300bps as a somewhat moot matter of policy. I dare say your 1200 bps modem will connect with ANY service listed in Boardwatch, including our own.

Editor.

## TELEBITS

### RUMORS, MIGHT BE'S, NUMBERS CAUGHT IN PASSING

NYNEX is pulling the plug on their Info-Look online gateway service effective May 10, 1991. According to company spokesmen, the service failed due to a combination of judicial restraints on their ability to provide information and a declining Northeast economy. The service was available in New York and Massachusetts. Industry observers estimate losses at between five

and ten million dollars. The service had received calls from some 12,000 people. But according to the New York Times, the service had slightly over 1000 regular users.

The Electronic Mail Association has announced that the program launched in 1989 to link member e-mail services via the CCITT X.400 addressing standard has been completed. You can now address e-mail between and among MCI Mail, AT&T Mail, Sprint Mail, BT Tymnet, Dialcom, and the IBM Information Network using X.400 addressing.

Microsoft may be taking a more direct role in communications issues subsequent to Bill Gates "Information at Your Fingertips" address to Comdex last fall. Rumor has it the company is developing an X.400 e-mail message server, codenamed Spitfire, to run under OS/2. The server will allow LANs to exchange e-mail with other mail services. Another rumor, printed in the Wall Street Journal, indicates Gates is buying up electronic re-

production rights to a wide array of classic art pieces around the country.

The Department of Defense has set up a series of toll-free lines where callers can obtain casualty reports from the war in Kuwait/Iraq. Air Force: 800-253-9276, Army: 800-626-1440; Navy: 800-255-3808; and Marine Corps: 800-523-2694.

According to Infocorp, IBM sold a total of 1,616,000 PCs in 1990 compared with Apple's 898,000 out of a total of 8,693,000 personal computers shipped during the year. Toshiba sold 256,000 laptops to Sharp's 228,000.

A few unfortunates in our society are addicted to watching springbok mate on public TV and listening to Daniel Shore explain what it means on national public radio. NPR freaks may be a strange bunch but they are loyal - All Things Considered. NPR is now operating SHIELD FM 107 Radio



in Saudi Arabia bringing Morning Edition and other public radio offerings to the troops.

USA Today reports an increasing trend toward new magazine launches over the past five years. New titles: 1985 -231; 1986 -376; 1987 -485; 1988 -509; 1989 -599; 1990 -536. About 500 introductions are expected in 1991. Of the titles launched since 1985, 36% survive the first four years of publication. With this issue of Boardwatch, we become one of them. Our first issue was March 1987.

Infoworld Magazine reports that *Soap Opera Now*, a weekly newsletter covering TV soaps, has sued Prodigy Services Company. Apparently, Prodigy started an online soap opera service last August and a number of stories from Soap Opera Now began appearing online verbatim. Michael Kape, editor of the 6500 subscriber weekly arranged for publication of a totally fictitious story with the consent of the story's subject. According to Kape, it appeared on the Prodigy service with virtually the same wording. The lawsuit seeks damages of \$38 for each of Prodigy's 700,000 subscribers. Prodigy refused to comment on the story.

And it gets worse. We have been a bit critical of Prodigy's marketing and administrative efforts of late. But it seems negative press has generated interest in the service. We have to assume they are doing stupid things at this point just to get in print. The latest - a ladies sewing circle. Yes, some women interested in embroidery had set up a private BBS on the service via e-mail to discuss sewing. They had also started "round robins" by mail where they actually pass around little bits of cloth and each woman adds a little bit of embroidery to the piece before passing it on to the next person in the leg. Prodigy Services Company has informed this ladies sewing circle that this is not an appropriate use of their e-mail system. The gals have moved to GENIE's Hobby RT en masse and from what we understand, they are more than a bit miffed. A word of warning to Prodigy - you can split

hairs and haggle with hackers till the cows come home and probably still survive it more or less. BUT IF YOU PISS MOM OFF, YOU'RE IN DEEP BUFFALO CHIPS COWBOY!

### **BBS CONFERENCE IN DENVER SLATED FOR AUGUST 15-18**

The International FidoNet Convention, FIDOCON91, is scheduled for August 15-18 in Lakewood Colorado - a Denver suburb. The convention will be held at the Sheraton Lakewood Hotel and Conference Center.

This year's BBS soire could be the largest in history. The Denver area provides a nice vacation environment anyway, and the list of luminaries who've already announced plans to attend is impressive. Tom Jennings heads the list as the man who started FidoNet, an international organization of nearly 10,000 BBS that exchange mail and message conferences. Tim Pozar, author of UFGATE will be attending, representatives from eSoft, Mustang Software, U.S. Robotics, and of course, Boardwatch Magazine, will be on hand. Dave Hughes of Old Colorado City Communications will be speaking at the affair and John Perry Barlow, of the Electronic Frontier Foundation is planning on attending. We've also heard from a remarkably diverse group of PCBoard, Wildcat! and other BBS system operators, not normally thought of as an integral part of FidoNet, who plan to attend.

The program includes such topics as "Surviving Government Scrutiny", "The Ultimate BBS of the Future", "Getting the Most from Binkley", "Gateways - the InterNetwork Connection", "Dealing with Sysop Burnout", "BBSing in the 90's and Beyond", "The Ethical Software Hacker", "For This I Gave Up My Love Life?", "Users: What Are They and Do I Really Need Them", "EchoMail vs. Astral Projection - Is There a Conflict?", and "TBBS/TDBS/TIMS Presentation". Steve Jackson of Steve Jackson Games will be there to discuss rights and future of BBS operators.

Jackson published GURPS CYBERPUNK and has been a center of Secret Service attention. Tim Teimpidis will also attend to speak on a similar topic. His MOG-UR's BBS in California was one of the first seized.

Conference registrations received by March 31, 1991 are \$69. Between April 1 and July 15th, registration is \$104. And registrations received after July 15th are \$169. Spouses may register at any time for only \$9.69. Note that the registration does NOT include the awards banquet - an additional \$25. Registration may be made by check or money order to FidoCon 91, P.O. Box 486, Louisville, CO 80027-0486.

Hotel rooms are quite reasonable at the Sheraton. Conference attendees can receive single/double rooms at \$59 nightly and Suites are available starting at \$95. For Hotel information/registration, contact Sheraton Lakewood Hotel, 690 Union Blvd., Lakewood, CO 80228; 303-987-2000. Make sure they understand you are with FidoCon91 to qualify for the lower rates.

For more info on FidoCon91, dial by modem the TelePeople BBS at 303-426-1942 or via netmail to 1:1/91. Internet address is [fidocon\\_91@z1.nl.f91.fidonet.org](mailto:fidocon_91@z1.nl.f91.fidonet.org).

### **PROCOMM SHIPS VERSION 2.0**

Data Storm Technologies has released version 2.0 of their popular Procomm Plus communications package. Procomm became ubiquitous on bulletin boards early in the shareware game and today is also the largest selling comm program on retail shelves. The new version has a number of new capabilities, including an internal ZMODEM file transfer protocol, EGA/VGA support, Microsoft Mouse support, and additional terminal emulations. Most notably, the included ASPECT script language has received a major overhaul with over a hundred new commands and a new compiler.



The new version requires 192K of available memory. New features include METAKEYS, which go a bit beyond macros in that they can actually run scripts. Another element is a file name clipboard that can cut filenames directly from a BBS listing or directory and paste the filenames to the remote computer for downloading.

The program is available at most software retailers at \$119. Current owners of Procomm Plus can upgrade to Procomm Plus 2.0 for \$39 by calling 800-333-4559 and charging to their MasterCard or VISA. DataStorm also operates a support BBS at 314-474-8477. DataStorm Technologies, Inc., 3212 Lemone Industrial Blvd., Columbia, MO 65201; 314-443-3282.

#### HELLO DIRECT OFFERS TELEPHONE ACCESSORIES

Hello Direct has been mailing out a little catalog of telephone accessories for several years. The products tended to be a little mundane (handset props, headsets, extension cords) and a wee bit pricey. But in recent issues they have caught our eye. The spring 1991 issue has some fascinating devices. Most notably, a \$199 Data adapter for cellular telephones. The device connects to your cellular telephone set and provides a standard RJ-11 modular jack to plug in your laptop. The device is 1 X 5.3 X 2.8 inches and priced at \$199.

Others: a book titled the *Official Cellular Roaming Directory* at \$16.95. A quick reference to traveling in every cellular system in the United States with billing rates, dialing info, cellular service maps, and emergency numbers. Replacement batteries for Motorola MicroTAC, Mitsubishi 900, Novatel PTR-800, and other handhelds. Little custom leather gloves for your handheld cellars. Their Executive UrgoSet headset telephone has to be one of the lightest, slickest looking headset telephones available - and they are PROUD OF IT at \$259. They also have amplified handsets for \$59.95, and a Caller ID readout

device for \$49.95. For the hearing impaired, or just those that like flashing lights, they offer a 70,000 candle power white light with PHONE printed on it that flashes a strobelight when the telephone rings - \$89. If you work in one of these office "cubicle" pac-man mazes, you know the frustration of hearing a telephone ring and running over to answer, only to find it's someone elses phone ringing. They offer a small red signal light that mounts on the cubicle wall. It flashes when the telephone rings - \$29. We also found a three way telephone cable switch with RJ-11 jacks for \$39.95 and a 13 oz hand-held cellular telephone for \$1095.

Interesting catalog. Still a wee bit pricey but their line is getting more interesting with each release. Unfortunately, the babes-on-phone that answer their order line have absolutely no idea what a telephone is, what a cellular telephone is, or any concept of what any device in the catalog does or why someone would want one. For a good time, call these girls and ask them about one of their products - hilarious. To get on distribution, contact Hello Direct, 140 Great Oaks Blvd, San Jose, CA 95119; 800-444-3556 voice or 408-972-8155 fax.

#### INFOHOST ANNOUNCES VERSION 6.01 ONLINE DATABASE

A-Comm Electronics, Inc. is now shipping Version 6.01 of the InfoHost multi-user online information systems software and a series of business database templates

termed the Complete Online Business Kit. Using InfoHost, you can place a database of goods and services on-line using your own PC so anyone who dials in to your system can access information, generate sales leads, leave messages, and make purchases via regular phone lines and modem.

In its latest version, InfoHost can support as many as 32 simultaneous callers on a single PC. It features a customizable relational database, a complete online ordering system, and database utility programs. InfoHost is used for mail order businesses, on-line product catalogs, and marketing and technical support applications. The product is priced at \$195 to \$995 depending on the number of lines supported. A-Comm operates a demonstration system at 201-288-7792 (8N1). A-Comm Electronics, Inc., 377 Route 17 South, Hasbrouck Heights, NJ 07604; 201-288-7885 voice; 201-288-1801 fax.

#### VEN-TEL INC. AND OKIDATA INTRO SYSOP MODEM DISCOUNT PLANS

Ven-Tel Inc. has joined the ranks of modem vendors offering discounts to BBS system operators. Qualifying systems must have been in operation at least six months and tout the Ven-Tel modem on their logon screen. The 9600 Plus Model EC96 provides CCITT V.32/V.42bis connections at a list price of \$899. This is discounted to \$499 for BBS operators. A support BBS is available at 408-922-0988. VEN-TEL, Inc., 2121

#### SYSOP MODEM DISCOUNT PROGRAMS 9600 BPS V.32 MODEMS

Vendor	Support BBS	Sysop Price	List
ATI	(416)756-4591	\$350	\$699
CompuCom	(408)738-4990	\$169*	\$279*
Hayes	(800)874-2937	\$599	\$1195
Intel PCEO	(503)645-6275	\$399	\$799
Practical Peripherals	(818)706-2467	\$339	\$699
U.S. Robotics	(708)982-5092	\$699	\$1295
Ven-Tel	(408)922-0988	\$499	\$899



Zanker Road, San Jose, CA 95131; 408-436-7400 extension 230 voice; 408-436-7451 fax.

Likewise, Okidata is discounting their \$995 Okitel 9600 model to \$454 for system operators. The Okitel 9600 provides V.32/V.42bis connections and features a five year warranty. Interested operators can call 609-235-2500 extension 7337 for more details.

### **TCP/IP SOFTWARE FOR PERSONAL COMPUTERS**

FTP Software, Inc. has unveiled a program titled **PC/TCP for DOS** Version 2.05 that allows remote personal computer users to dial into networks using the TCP/IP (Transmission Control Protocol/Internet Protocol) protocol.

The new version supports Point-to-Point Protocol, a method for dialing into TCP/IP networks by modem to access files and services. Previously, the program only supported SLIP, the Serial Line Interface Protocol that required more stringent configuration for each call. **PC/TCP for DOS** is actually a collection of programs providing File Transfer Protocol (FTP), telnet terminal emulation, and electronic mail. The most common use for the software is to access Internet from a remote PC on an intermittent basis. FTP Software is enormously proud of their efforts at \$400 for the package. FTP Software, 26 Princess St., Wakefield, MA 01880; (617)246-0900.

### **10,000 SHAREWARE PROGRAMS ON CD-ROM - \$159**

Night Owl Computer Service released a new shareware CD-ROM collection February 4, 1991. The CD contains 10,700 IBM files occupying 507 MB of space and the files appear to be very current. The files are setup for use with PCBoard systems and the directory text files are already included for 35 subdirectories. Night Owl operates a PCBoard BBS at 716-881-5688 using the US Robotics HST Dual Standard modem. The CD-ROM is priced at \$159 for end

users and \$120 for BBS system operators. Sysop Richard Graham has the CD-ROMs made himself. Night Owl Computer Service, 219 Potomac Ave., Buffalo, NY 14213; 716-886-2726.

### **ENVELOPE PRINTING SOFTWARE FOR POSTAGE DISCOUNTS**

Inflation dead? Not where the United States Post Office is concerned. They just awarded themselves a 16% rate increase on February 3rd for first class mail bringing the price to mail a first class letter to 29 cents and additional ounces to 23 cents. Hellooo Federal. Somewhat more quietly, they also announced that within a few months, you can actually mail first class letters for 27 cents - if you know how. The two cent discount is available on all mail that use both a 9-digit zip code AND have the Postnet bar code printed on the envelope. The 9-digit zip code is no problem, but how do you print the Postnet code on the envelope?

If you have an HP Laserjet or compatible printer it is no problem at all. We have been using a marvelous little utility titled **ENVLJ Version 7** written by Steven D. Stern and released October 29, 1989. This program doesn't really do very much. But it is small, simple, and what it does do it does marvelously well.

**ENVLJ.EXE** addresses envelopes. It works only on HP Laserjet, Laserjet Plus, and Laserjet Series II printers or compatibles. Since the number of laser printers based on the Canon engine is beginning to look like a zip code anyway, this is becoming less of a restriction for a software program.

**ENVLJ.EXE** is an independent program you can call from anywhere, quickly enter an address, jam an envelope into the printer and instantly get it out the other end - attractively addressed and complete with the **POSTNET** bar code printed across the bottom of the envelope. The program comes in the distribution file

**ENVLJ724.ZIP** - about 84 KB in size. We would not want to do a 100,000 piece direct mail campaign with this program. But for ripping out a quick letter, it just can't be beat by any other software program around. The requested fee is \$25 - probably a bit pricey considering what the program does. But after about 1250 letters - it pays for itself. Steven Stern, Crown Software Corporation, 900 N. Michigan Ave., Chicago, IL 60611; 312-915-1131.

Another program of interest to those enjoying woefully out of date postal scales is **Stamps Version 2.1** by David Brown. This tiny 8132-byte program is appropriately free in the file **STAMPS21.ZIP**. Enter **STAMPS** from the command line followed by the number of ounces - it calculates postage due. No address.

### **HAYES WINS MODEM PATENT SUIT**

Hayes developed the AT command set for communicating with modems. AT stands for ATtention and it prefaces all commands to the modem to take action such as dial the telephone (ATDT), answer the telephone (ATA), etc. The Hayes AT command set is widely copied by other modem manufacturers and has in fact become a defacto standard. In general, the AT command set is pretty much available for use by everyone. But Hayes also developed a method to determine whether you were sending a command to your modem - or sending text out through the modem. In a terminal mode, you can send command to your modem generally by sending three plus characters (+++) as long as no other characters are sent within a certain guard time on either side of them. This "improved escape sequence" is the heart of the Heatherington 302 patent granted Hayes in 1985.

Numerous other modem manufacturers, in an attempt to be "Hayes compatible" have also incorporated the escape sequence in their models. Hayes approached these companies to sell them licenses to



the technology, but instead, they formed a consortium named the Modem Patent Defense Group to try to invalidate the patent. The matter has wound its way through the legal system for years. On January 25th, a San Francisco jury returned a verdict upholding the patent in a lawsuit between Hayes and three modem manufacturers: Everex, Ven-Tel, and Omnitel. Federal Judge Samuel A. Conti approved the damages awarded by the Jury and scheduled a later hearing to determine prejudgment interests to be added to the award for infringing sales going back to 1985, and to determine an appropriate injunction prohibiting the three companies from continuing manufacture and sale of modems infringing the patent. The Jury did find willful infringement and the judge may, at his discretion, treble the \$1.4 million damage award as well as cover Hayes legal expenses.

Hayes has licensed the patent to 17 modem manufacturers, including two who took licenses on the eve of the San Francisco trial. The company is expected to pursue modem manufacturer Multitech in another trial in Minneapolis later this year.

### NEW LHARC VERSION IN BETA TEST

File compression programs have made life online easier for everyone, with the exception perhaps of the compression software authors themselves. Program's such as SEA's ARC and PKWare's PKZIP allow all the files that make up the typical IBM program to be combined into a single file - and squeezed down to half their original size as well. If we had to download twenty different .EXE, configuration, data, and document files to get a single program to work, it's unlikely that anyone would bother. And the compression utilities literally cut in half the time spent online downloading files.

PKZIP has become the overwhelming favorite among the BBS crowd. It is the fastest of the archive util-

ities and creates archives that, while they are not always the smallest, are at least competitive in size. One other program has drawn considerable interest however. The program is titled LHARC and it was created by Haruyasu Yoshizaki and a group of PC enthusiasts in Japan. Currently in release 1.13, LHARC probably creates the smallest archives in the business, and it works particularly well on series of small text files. Aside from the mystique of arriving from Japan, the program, while copyrighted, is completely free of charge - no registration fee. When first released with source code, it inspired a flurry of improvements by authors of ARC, ZIP, and PAK. So goes the compression wars.

The author of LHARC currently has a new version in beta test titled LHA Version 2.05. The new version has had a bit of a name change, ostensibly due to inclusion of an LH (Load High) command in Microsoft's DOS 5.0. A number of the routines from LHARC were recoded into assembly language and compression was improved remarkably. The net result was compression speed remains about the same with smaller .LZH files as output.

We tested the new version on 18 small text files comprising the USAToday Decisionlines newsfeed we distribute to over a hundred BBS across the U.S. Canada, Mexico, Australia, United Kingdom, Taiwan, and Japan each business morning. Because this transfer is performed each business day and many of the subscribing systems still perform the transfer at 2400 bps - some via international direct dial, every byte we can squeeze out of this transmittal file saves these systems cash money in long distance charges.

The original 18 files tested take up 92454 bytes of real estate in uncompressed form. We compared LHARC 1.13, PKZIP 1.10, and the new LHA 2.05 beta:

UTILITY	FILE SIZE
PKZIP 1.10	55,672
LHARC 1.13	52,165
LHA 2.05	49,444

As you can see from the results, LHA created an archive 2721 bytes smaller than the previous version cutting a little more than 10 seconds from a typical 2400 bps transfer. And it shaved 6228 bytes from the size of a .ZIP file which translates into 26 seconds of connect time.

The new version is available for download in the file **LHA205E.EXE** and includes documentation translated to English by Kenjiro Okubo. You may contact Okubo with questions at K.Okubo on GENie, 74100,2565 on CompuServe, or c31834@sinet.ad.jp via Internet.

### CNN PETER ARNETT REACHES OUT TO TOUCH SOMEONE - BY SATELLITE

Turner Broadcasting's CNN has scored a bit of a coup when reporter Peter Arnett decided to remain in Baghdad. But how does Peter make the connection? The device he uses to transmit voice telephone is made by a company named Mobile Telesystems Inc. The suitcase unit weighs 75 pounds and features an umbrella antenna that must be pointed at one of four orbiting communication satellites. The calls are bounced off the satellite to one of two earth stations located in Southbury Connecticut and Santa Paula California. At the dial tone, he dials quite normally and the earthstation patches him into the public telephone network.

You thought your cellular carrier was a bit pricey. MTT's devices are handmade and they can only turn out about 50 per month. They have a current backlog of 150 units on order. And MTT is enormously proud of the units at \$55,000 each. They also snag between \$7 and \$10 per minute for the calls - good work when you can get it I say. Yes, the



unit can connect fax or modems. Mobile Telesystems Inc. 300 Professional Drive, Gaithersburg, MD 20879; 301-590-8500.

### IBM INTRODUCES ISDN PRODUCTS

The glacial move toward Integrated Services Digital Network (ISDN) telephone service lurched further forward a bit this past month with the introduction of a set of IBM hardware and software offerings to take advantage of it. Basic Rate Interface ISDN promises to provide two 64kbps bearer, or "B" channels, and one 16kbps supervisor or "D" channel to subscribers using existing telephone service wiring.

IBM unveiled a terminal adapter card for their PS/2 personal computers, and a terminal adapter for their mainframe 3174 cluster controller, along with some interesting software packages.

The ISDN Interface Co-Processor/2 Model 2 Adapter card works in PS/2 models 50 and higher under either DOS or OS/2. The card will be available in June at \$1195. While modems are unnecessary over the digital ISDN lines, a terminal adapter is required. For data purposes, you can think of terminal adapters as ISDN modems. They don't actually modulate/demodulate data into audio tones, but they do provide the required interface.

The IBM ISDN Co-Processor Support Program version 1.1 provides the Synchronous Data Link Control (SDLC) protocol over the 64kbps B channel. It also includes an application programming interface and an ISDN BIOS interface allowing existing NetBIOS applications to run over ISDN unchanged. The program will be priced at \$350.

Finally, the 3174 ISDN BRI Adapter supports up to eight ISDN connections to mainframe hosts through the 3174 Establishment Controller. This is a communica-

tions peripheral for mainframes. Available in September, the adapter will be priced at \$4800.

Between these three offerings, IBM has provided the basic tools to connect PS/2 personal computers to IBM mainframes at 64kbps through the public switched telephone network via ISDN. This could provide a big boost to ISDN data applications.

### LOTUS DROPS "MARKETPLACE" CD-ROM PLANS

As the result of an unexpectedly strong negative reaction from consumers, Lotus Development has abandoned plans to ship their CD-ROM directory product titled "Marketplace: Households". The marketing database was to provide detailed information on 120 million U.S. consumers.

In addition to name, address, telephone data, the database also provided information on consumer incomes and buying habits. In response to early announcements of the product, Lotus was roundly criticized for marketing a product that would invade the privacy of millions of U.S. Consumers. To stem the criticism, they publicized a toll-free number consumers could use to have their names deleted. The company received over 30,000 responses from consumers demanding that they be deleted from the database. According to Lotus president Jim Manzi, "What drove our concerns was the volume and tenor of the concerns that were being raised by consumers all over the United States."

The company also decided to cease sale of "Marketplace: Business". This was a similar database of 7 million businesses available since last October.

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## COLORADO SUPERNET OFFERS PUBLIC ACCESS TO INTERNET

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Our article in the August 1990 issue of Boardwatch provided a bare introduction to sending mail to, from, and through the "Internet" from a Fidonet BBS. The response indicated a profound interest in Internet, as well as a profound confusion about Internet, among our readership. The problem is that while we can get very much into the guts of Internet in Boardwatch, those readers without some connection at the local University or Research Lab are going to be a little left out. In this article, we'll describe one of a small, but growing number of public access ports into Internet and the world of Unix networking. It IS now quite possible for an individual to legitimately access Internet from their home or office desktop. Information researchers may find access to dozens of University library card catalogs and databases particularly attractive.

Terminology is the first barrier to discussion of "the Internet." There are hundreds of networks operating throughout the world to connect computer systems. Each has its own history as to how it came to be, but the advantage of providing connections between them is obvious. The process of connecting networks could be referred to as "internetworking". One of the earlier efforts at bridging computer networks was launched by the federal Defense Advanced Research Projects Administration (DARPA) as the ARPA Internet or ARPANET in 1969. This was basically a 56 kbps network linking major computer sites at government, academic, and industrial sites. The agency experimented with a variety of transmission mediums during the seventies including satellite, mobile radio, and leased lines.



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Searchlight Software, PO Box 640,  
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DARPA gradually developed a transmission protocol that flexibly used any of these mediums to connect systems. This protocol matured as the Transmission Control Protocol/Internet Protocol (TCP/IP) by the end of the decade. To encourage use of this protocol, DARPA funded a project to implement TCP/IP in the Berkeley Standard Distribution version of the UNIX operating system. Because it was freely available, TCP/IP did catch on quickly within the Unix world. This protocol allowed users to exchange mail and files across disparate networks and even to logon to various systems so connected. In a generic sense, an "internet" is any network of networks using TCP/IP as the communication protocol.

ARPANET access was restricted to those sites sponsored by a small set of federal agencies involved in defense work. Many in the academic community were left out. In 1984, the National Science Foundation

(NSF) acted to create a network more generally open to the general academic community - similar to ARPANET but with less restrictions on who could be connected. The NSFNET was established as a "network of networks" with a backbone built on high speed dedicated links webbing the country using TCP/IP protocol. By 1988 this backbone consisted of twenty nodes scattered around the nation connected by T1 telephone lines capable of 1.544 Megabit-per-second (Mbps) data rates. NSFNET is currently undergoing an upgrade from T1 service to the newer 45 Mbps T3 service and six nodes had made the higher connection by the end of 1990.

NSFNET is administered by Merit - the Michigan State research network. MCI Communications provides the telephone services and IBM contributes the network equipment. This trio recently formed Advanced Network and Systems Inc. or ANS. They cur-

rently operate the NSFNET system and hope to continue to do so. Their current contract expires in November 1992. So basically, the "Internet" is a data backbone offering connections to hundreds of other existing networks of computers.

In addition to the national backbone, the National Science Foundation also funded regional networks in the area of each of the national nodes. NSFNET can be thought of as the federal interstate highway system for data. Twenty major computer centers around the country are linked with T1, and increasingly, T3 data connections. In the vicinity of each of these nodes are "regionals". These are more local organizations, often under the auspices of individual states, who connect specific universities and research facilities to the nearest NSFNET node. These regionals could be thought of as state highway departments. Colorado SuperNet is one such regional



# BOARDWATCH MAGAZINE

LIST OF UNIVERSITY LIBRARIES AND SERVICES AVAILABLE THROUGH INTERNET TELNET LOGIN

SERVICE	TELNET ADDRESS	DIALUP	LOCATION	VOICE HELP	PROMPT1	RESPONSE1	PROMPT2	RESPONSE2
Boston University Library	.....lib.bu.edu	(617)353-9601	Boston MA	(617)353-3704	blank screen	Connect Bux	Bux	Telnet Library
Brown University	.....brownv.brown.edu	None	Providence RI	(401)863-2167	Command	DIAL JOSIAH	Specific NodeID	ESC-1
California Polytechnic	.....lib.calpoly.edu	None	San Luis Obispo CA	(805)756-2190	LOGIN:	POLYCAT		
Carnegie Mellon University	.....cmulib.bu.edu	None	Pittsburgh PA	(412)268-2442				
Cleveland Freenet	.....freenet-in-c.cwrn.edu	(216)388-3888	Cleveland OH					
Colorado Alliance Research Lib	.....pac.carl.org	(303)863-1350	Denver CO	(303)861-5319	None			
Cornell University	.....cornell.cit.cornell.edu	None	Ithaca NY	(607)255-4144	blank screen	LIBRARY		
Dartmouth College	.....lib.dartmouth.edu	(603)643-6310	Hanover NH	(603)646-2999	@	CONNECT LIBRARY		
Emory University Libraries	.....emumvli.cc.emory.edu	None	Atlanta GA	(404)727-0271	CPREAD	DIAL VTAM	VTAM	LIB
Florida State Univ. System	.....nervm.nerdc.ufl.edu	None	Tallahassee FL	(904)644-5211				
Kent State University	.....catalyst.kent.edu	None	Kent OH	(216)672-2962				
Lehigh University	.....asa.lib.lehigh.edu	None	Bethlehem PA	(215)758-4998				
Michigan State University	.....merit.msu.edu	(517)353-8500	East Lansing MI	(517)359-6762	Which Host?	MAGIC		
New Mexico State University	.....lib.nmsu.edu	None	Las Cruces NM	(505)646-1508	:	hello user.llbr01		
New York University	.....bobcat.nyu.edu	None	New York NY	(212)998-2490				
Northwestern University	.....paxc.acns.nwu.edu	None	Evanston IL	(708)491-7658	ENTER CLASS	.60		
Ohio State University	.....cs.us.ohio-state.edu	(614)292-3070	Columbus OH	(614)292-6151	host name:	LCS	password:	*LCS
Princeton University Library	.....pucable.princeton.edu	None	Princeton NJ	(609)258-3180	#	CALL 500		
Purdue University	.....lib.cc.purdue.edu	None	West Lafayette IN	(317)454-2857	DIAL	LIBRARY	graphic type	THOR
Rensselaer Polytechnic Inst.	.....infotrac.rpi.edu	(518)276-8990	Troy NY	(518)276-8310	Which Host?	INFOTRAX		
Texas A&M University	.....venus.tamu.edu	None	College Station TX	(409)845-8111	Username	VTAM	Texas A&M	NOTIS
Univ. of California Berkeley	.....gopac.berkeley.edu	None	Berkeley CA	(415)842-3532	None			
Univ. of California MELVYL	.....melvyl.ucop.edu	None	Oakland CA	(415)987-0700	login:	LCS		
Univ. of ILL Urbana-Champaign	.....garcon.cso.uiuc.edu	None	Urbana IL	(217)339-8400	Logo	DIAL VTAM	Suny Public Inf	1
Univ. of New York Binghamton	.....bingvnc.cc.binghamton.edu	None	Binghamton NY	(607)777-4331	WISC	NLS1		
Univ. Wisconsin Madison	.....nls.adp.wisc.edu	(608)262-8670	Madison WI	(608)262-8880	terminal	TYPETERM		
University of Delaware Library	.....delcat.udel.edu	None	Newark DE	(302)451-2965	Log on	DIAL PVM	PVM	NOTIS
University of Ill at Chicago	.....ulicvm.uchicago.edu	None	Chicago IL	(312)996-2716	User Name	RELAY	CICS-VS	OCAT
University of Kansas Library	.....kuhub.cc.ukans.edu	(913)864-5370	Lawrence KS	(913)864-0110	LOGIN	ursus		
University of Main Systems Lib	.....ursus.maine.edu	None	Orono ME	(207)581-1660	blank screen	CAT		
University of Maryland	.....umcat.umd.edu	None	College Park MD	(301)454-7332	terminal type:	VT100	Which host?	mlrlyn
University of Michigan	.....dis.merit.edu	(313)763-4800	Ann Arbor MI	(313)764-9356				
University of Minnesota	.....lumina.lib.umn.edu	None	Minneapolis MN	(612)626-2272	login	STUDENT1		
University of New Mexico	.....bootes.unm.edu	None	Albuquerque NM	(505)277-4848	Enter Command	LIBRARY		
University of Notre Dame	.....irishmvs.cc.ndu.edu	None	Notre Dame IN	(219)239-5252	Enter Class:	uonet	UOnet	c janus - janus
University of Oregon Knight L.	.....janus.uoregon.edu	(503)346-3565	Eugene OR	(503)364-3053				
University of Pennsylvania	.....pennlib.upenn.edu	None	Philadelphia PA	(215)998-7555				
University of Tennessee	.....dca.utk.edu	None	Knoxville TN	(615)974-4127	HOST NAME	library		
University of Texas Arlington	.....admin.arl.utexas.edu	None	Arlington TX	(817)273-3000	VTAM	NOTIS	CICS	LUUT
University of Texas Austin	.....utaus.cc.utexas.edu	(512)471-9420	Austin TX	(512)471-3811	CLASS=	UTCAT	Univ Texas	UTCAT
University of Texas Dallas	.....ibm.utdallas.edu	None	Richardson TX	(214)690-2950	clear screen	library	command	LIBRARY
University of Utah Marriott	.....lib.utah.edu	None	Salt Lake City UT	(801)581-7994	Logon	D UNIS		
Virginia Polytechnic Institute	.....128.173.5.4	None	Blacksburg VA	(703)231-5593	CBX	CALL VTLS		



network entity. It connects University computers within Colorado to the National Center for Atmospheric Research (NCAR) facility in Boulder Colorado - one of the NSFNET ports.

If you view the NSFNET, the regional networks that connect to NSFNET, and all the networks ultimately connected to the regionals, as one all encompassing "internetwork" and wanted to give it a name you might be hard pressed. And note that the original ARPANET still exists along with a separate NASA Science Network and Energy Sciences Network - all of which have some connectivity between themselves and NSFNET. So we may have simplified things a bit much here. In an organizational and physical sense, these are different networks of course. But since we can share files, e-mail and so forth among all of them, it has a more ethereal nature as a single "internetwork". And so it has come to be known as simply "The Internet".

Because of the early conflict in "who got access" to ARPANET, Internet today enjoys a basic philosophy that Universities and civilian research entities ARE included. In fact, they are a bit wed to the idea that anyone with a legitimate research interest CAN be connected. And they've been quite generous in their definition of who has a legitimate research interest. The resulting web of networks tied into, and together, through this high speed backbone can best be described as anarchic chaos by design and the restrictions on who can and who can't access the network are a bit clouded.

Internet is becoming the focus of much ado these days largely thanks to the efforts of several legislators who envision a national online superhighway system. Senator Albert Gore, Democrat of Tennessee, has repeatedly and persistently introduced legislation to establish a National Research and Education Network (NREN). The bill passed the U.S. Senate last time around but died in the House of Representatives. This year, he

has reintroduced the bill along with a House sponsor, Representative George Brown, democrat from California. Titled "The High Performance Computing Act of 1991", the bill calls for authorizations of \$650 million for the National Science Foundation and \$338 million for NASA between 1992 and 1996 for research and construction of a multigigabit network linking universities and businesses. President Bush has included a line-item in the budget to fund the effort and endorses the concept. The bill could come up as early as April. With a champion in the House, most watchers expect the bill to pass. It would eventually establish a much higher speed connection of as much as 3.4 Gigabit per second data rate - vastly expanding the capacity of what is now known as the Internet.

The federal Office of Technology Assessment (OTA) is currently gathering information on what this electronic superhighway might look like, who might have access to it, who might run it, and what it would be used for. Their recommendation will go to the Congress. While some effort has been made by OTA heroes to include input from the grassroots, the debate is largely taking place behind closed doors among those with a vested interest in the future of the network. IBM and MCI, through their Merit joint entity, are salivating over the possibility of a contract to operate NREN.

One of the hot topics of the debate revolves around the question of who will have access to NREN. Some of the debate participants envision a network connecting super computers available only to the high priesthood. Others see connections to the educational system K through 12. Yet others advocate a connection to every home in the country. Proponents of commercial online services and telcos tend to want to limit the service to the elite as they envision the possibility of providing comparable services at a profit. The problem is that they readily admit there is currently no market for data communications sufficient to justify

the very large investment required to build such a high-speed data highway. Populists claim that if it's tax supported, all should have access. Sadly, the key players seem to be steering the development toward an elitist concept. But Mitch Kapor of the Electronic Frontier Foundation, and Dave Hughes of Old Colorado City Communications, are valiantly fighting to foster a more populist point of view.

Currently, the most common access to Internet is through a local University. Students and faculty enjoy access worldwide through Internet. Universities have actually been quite generous in providing links to companies in the community as well. But as tax supported educational institutions, this alliance with the commercial world is a bit uneasy.

As often happens, while the debate rages among the ivory tower crowd, the REAL heroes in the field are already at work. The state of Colorado established a Colorado Advanced Technology Institute (CATT) entity a few years ago to promote high technology development within the state. As part of that, Colorado SuperNet was authorized as a non-profit corporation. SuperNet was established in 1986, originally to link major Universities within Colorado to share super computer resources. Colorado State University's Cyber 205 computer in Fort Collins was part of the original impetus behind this. SuperNet originally provided access to this computer - no longer in operation. SuperNet gradually included smaller community colleges and even private research institutions and companies in the network.

Today, Colorado SuperNet is part of a larger six state network known as WestNet. They tie directly into the NSFNET backbone of Internet via a high speed dedicated line connection to the National Center for Atmospheric Research (NCAR) in Boulder.

SuperNet offers linkups to anyone with a reason and desire to be on Internet. Until recently, their focus



was on 9600 bps and 56 kbps dedicated line links involving a \$7500 annual membership, plus leased line and equipment costs, to connect company systems into Internet. More recently, SuperNet has introduced public dial-up access to Internet via Telebit T2500 modem ports. These ports support both the proprietary Telebit 19,200 bps packetized ensemble protocol (PEP) connection and the more standard 9600 bps CCITT V.32 connection.

Normally, independent Internet links are simply out of the economic reach of small companies and individuals, requiring dedicated leased lines, fairly expensive equipment, and so forth. The public dial-up access program of SuperNet brings more casual access down to an economic level where individuals can conceivably afford to play. An account on SuperNet involves a modest \$2 hourly fee with a \$20 monthly minimum. While this is substantial in terms of the BBS world, it is a genuine bargain if you're interested in downloading files from Helsinki, sending e-mail to Indonesia, etc.

Individuals and small companies can set up an account allowing access to Internet on an as-needed basis. There is no online signup and a contract must be signed before access. Once an account is established, users access the system by simply dialing up the local nodes in Denver, Colorado Springs, or Fort Collins and logging on. Three access types are available, UUCP, SLIP, and a normal login process. UUCP stands for Unix to Unix Copy Program, and it is a very common method of swapping data between Unix computers. SLIP is the Serial Line Interface Protocol used for TCP/IP sessions on an intermittent basis. For most IBM compatible users, the manual logon procedure is the more useful of the three - much like dialing a local BBS.

Many Unix BBS systems have some connection to Internet. The WELL, for example, carries Usenet Newsgroups and allows

some mail functions. But basically, you are still on a single BBS that has some sporadic connection to an Internet site. Via Colorado SuperNet, you are actually IN or ON the Internet. You can logon to other computers around the country (those that allow it), transfer files, and of course, send mail. The difference is important and remarkable.

Once they've logged into the system, callers essentially have access worldwide to Internet sites allowing public file access - referred to as "anonymous file transfer protocol or anonymous FTP". You can also use a simple remote terminal function referred to as **telnet** to logon to computer systems worldwide where you have permission to do so. Many University Research Libraries across the country maintain online card catalog systems and allow anyone to logon that wishes to do so. The accompanying table lists over forty such sites accessible via Internet. Simply enter "**telnet freenet-in-c.cwru.edu**" for example, to connect to Cleveland Freenet via Internet. This service is also available by direct dial modem at 2400 bps and paying approximately \$6.80 hourly in long distance charges using night rates. Via Colorado SuperNet, we had a 9600 bps connection at \$2 hourly.

Further, this is not a jerky, delay-ridden packet network like PC Pursuit or Tymnet. You are connected to Cleveland Freenet at a full-duplex, 9600 bps V.32 connection - very smooth and quite pleasant. The backbone actually IS a packet network - but a very fast one.

We found the 9600bps V.32 connection to SuperNet to be flawless. The system is Unix and currently there is no real BBS menu system front end for it. Basically, you are dumped into your home directory on a Unix system. Novices to the online world are NOT going to be comfortable here but advanced users who want to play with Unix will be delighted. The system provides ZMODEM protocol transfers, a choice of three Unix "shell"

programs to access the service, and all the amenities the spartan world of Unix allows. You automatically receive a 1 MB file space with additional space available at a nominal charge.

The other interesting element of Internet is of course, e-mail. There is almost no one with an e-mail account anywhere that you cannot reach via Internet IF you have the proper addressing knowledge. Unfortunately, addressing can be a bit of a puzzle. And there are a few networks, such as GENIE, that still haven't made the connection yet.

As a Colorado SuperNet subscriber, you have your own mail address. Internet addresses can be quite cumbersome. Our Fidonet address via Internet is **jack.rickard@f555.n104.z1.fidonet.org**. We were pleasantly surprised to learn that the shank is a bit shorter via SuperNet - **jrickard@csn.org**. In fact, for an additional one-time charge of \$20, you can obtain your own Internet domain name. We look forward to becoming **jrickard@boardwatch.com** some time in the near future.

Within the past year, a number of commercial e-mail services have connected to the Internet to allow their subscribers to send e-mail to individuals with Internet addresses. To do so, the reverse necessarily also became true and individuals on Internet systems can send e-mail to commercial mail boxes on such services as MCI Mail and CompuServe. This gives rise to a curious situation. Most administrators for regional Internet groups are a bit uncomfortable about the concept of appearing to compete with commercial e-mail services. Nevertheless, the connection is there and there is no method to charge for individual messages to those services. Connections to commercial e-mail services are available by default, if you know how to address messages to them.

To address mail to a subscriber on MCI Mail, for example, you would enter the command: **mail 418-**



**7112@mcimail.com.** The system would prompt you for a subject, and then allow you to enter the text of the message. The message would go to our account on MCI Mail 418-7112 and our tests indicate a complete travel time of nearly ten minutes.

Likewise, mail can be sent to CompuServe. CompuServe mail is based on subscriber ID numbers of the form, **71177,2310**. One of the vagaries of Unix is that it uses commas for other purposes. So you simply convert the comma to a period. Addressing to CompuServe would appear as: mail **71177.2310@compuserve.com**.

The reverse channel is also available. You can quite easily send e-mail from CompuServe or MCI Mail to an Internet address.

On MCI Mail, simply enter the name of the recipient with (EMS) appended to it. This will call up an EMS: prompt. Enter INTERNET at this prompt. The responding prompt will be MBX: Enter the full Internet address at MBX:. At the next MBX: prompt, simply press the ENTER key.

TO: Jack Rickard (EMS)  
EMS: Internet  
MBX: jrickard@csn.org  
MBX: [press ENTER key]

On CompuServe, addressing is a bit different, but not much. When sending a CompuServe message, you are first asked for the persons NAME: Anything will do as you are not going to use this to address anything. The next field is ADDRESS: Here, you must start the address with the greater-than symbol (>) followed by the word INTERNET, a colon, and a space, followed by the actual Internet address:

ADDRESS:>INTERNET:jrickard@csn.org

Another element of attraction on Colorado SuperNet are Usenet News Groups. This is the Internet equivalent of Fidonet Echomail or PCBoard message conferences. The difference is there are now

over 1000 of them and they generate thousands of messages. The alt.desert-storm news group carried nearly 6000 messages when we looked at it - none over two weeks old. Naturally, the discussion concerned our little buddy Saddam Hussein and the whacky Iraqis. We were also attracted to soc.culture.filipino on Philippine issues and of course rec.autos.vw, which provided some profound discussion on what might be ailing our venerated, if crotchety, 78 Volkswagen Microbus. The comp.dcom.telecom is a good place to learn about various telephone company product offerings and services.

A number of BBS are using packages such as Tim Pozar's UFGATE to connect with Unix systems to port Usenet News Groups to MS/PC-DOS-based BBS. UFGATE essentially gives DOS computers a UUCP capability. The problem of course, is finding a Unix machine carrying all the newsgroups that allows the connection. Colorado SuperNet is one public access port into Internet for such purposes and they do offer a UUCP connection. With a package such as UFGATE, and an account on SuperNet, you can carry Usenet Newsgroups on your MS-DOS BBS much as you would Fidonet Echomail, PCBoard message conferences, or any of the growing number of shared BBS message conference networks springing up around the country. UFGATE is available from Pozar's Late Night Software BBS at 415-695-0759.

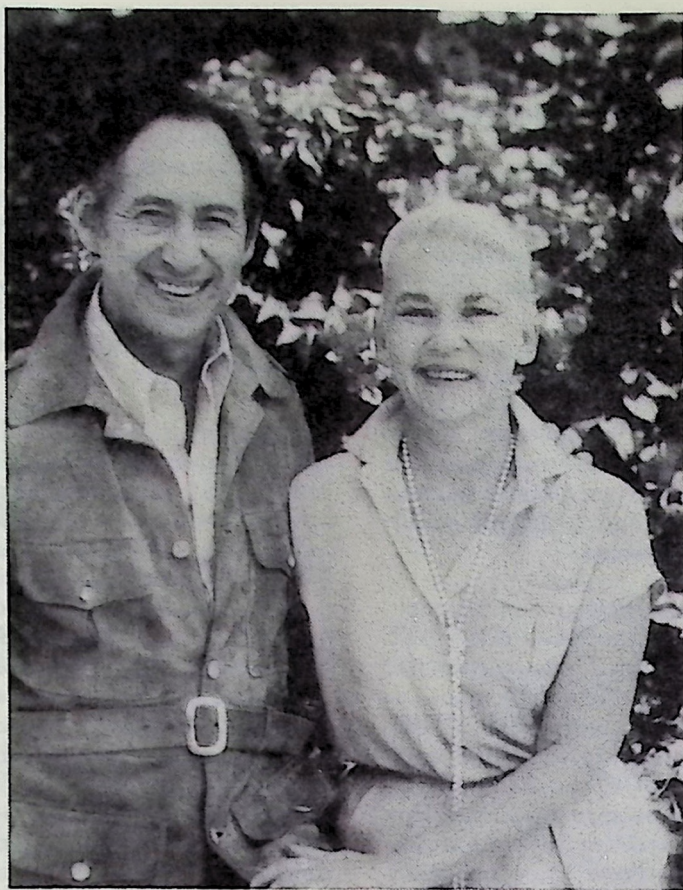
According to Dave Menges, acting manager of the public dial-up service of SuperNet, most of the current SuperNet subscribers involve small technical companies in the area, research groups within local hospitals, and a couple of high school connections. But a few individuals have signed up for the program.

On the negative side, Colorado SuperNet provides very little in the way of documentation for their service and without even the usual Unix BBS front end, it can be daunting for novices. Their ac-

counting system is crude with no credit card charging system. You send them money. When it runs out, they send you an e-mail message to send more. According to Dave Menges, companies that must operate from invoices and purchase orders can be invoiced on a quarterly basis. Colorado SuperNet, Inc., Colorado School of Mines, 1500 Illinois Street, Golden, CO 80401; 303-273-3471 voice; 303-273-3475 fax.

Internet is growing at a dramatic pace. Networks of all kinds are making the connection to gain the obvious advantage of further connections to still other networks. With the advent of more accessible public access ports offered by regional entities such as Colorado SuperNet, almost anyone can make the connection at a reasonable cost. Internet appears to be reaching a critical mass where the allure of hooking up may become irresistible to virtually every type of computer - from the individual desktop computer through the largest corporate LAN - and of course including local BBS systems. In chasing the holy grail of universal connectivity, the "Internet" currently stands as the most plausible universal network on the globe. Legislation on NREN can only enhance that position. While everyone involved with the Internet struggles with the concepts of what it is, what it should be, who should benefit from it, and how it should work, it continues to grow. We cannot fully divine what it will eventually look like. In fact, we have had enormous difficulty in determining what it looks like now. But we enthusiastically applaud the trend toward more open access to all interested parties. And we would posit that within Internet lies the seed of a future online world of universal connectivity and access - very much in line with our own ultimate goal of unlimited intercourse between consenting computers. In future issues, we'll provide a list of other regional groups providing public access to Internet.





Alvin and Heidi Toffler

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## AN INTERVIEW WITH ALVIN TOFFLER

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***Powershift: Knowledge, Wealth, and Violence at the Edge of the 21st Century***

Interview by Nick Anis

Not many people are privileged to have insights profound enough to change the way people perceive the ebb and flow of events around them. In this century, names like Claude Shannon (information theory), B.F. Skinner (S/R psychology), Marshall McLuhan (media and the "global village"), James Lovelock ("Gaia," or the world viewed as an organism), and a few others come to mind. Alvin Toffler is prominent in any such pantheon

of important 20th Century thinkers. His analysis of how this century's accelerating rates of change in every area of human thought have influenced an entire generation of analysts and policy makers.

The far-reaching consequences of the computer revolution were just starting to become clear in 1965. Toffler and wife and co-author, Heidi Toffler, published an article called the *Future As A Way of Life* in which he coined the term *Future Shock*. This article started the Tofflers on a five year research and writing journey which culminated in the publication of *Future Shock*, their first book the subject of change. Other important books he's written include *Previews and Premises*, and *The Adaptive Corporation*. But it is what some are now calling his "Change Trilogy," the series

begun by *Future Shock*, that most people think of when they hear Toffler's name.

In *Future Shock*, Toffler described the process of change itself, and how it affects people and organizations. The second book of the series, *The Third Wave*, focuses on the directions of change, and on where today's changes are taking us. *Powershift*, the third in the trilogy, deals with controlling changes that are yet to come -- who will shape them, and how.

Like his previous "Change" volumes, *Powershift* (released in October, 1990) has spent many weeks on the *New York Times* Best Seller list. It climaxes and extends Toffler's ideas, to form a deep, comprehensive synthesis of thought on the fast-arriving civilization of the 21st Century. In *Powershift* he also addresses the equally significant, but less widely heralded changes and power shifts now taking place at the level of the workaday world where we all live -- at the supermarket, gas station, hospital, bank, and business office.

When he's not traveling, Toffler splits his time between the East and the West Coasts, living six months in Connecticut and the other six in the California. He and Heidi, his wife and co-author, have always moved around. He's taught at Cornell University in New York, but has also worked as a reporter in Washington and a blue collar worker, putting in five years at factory jobs including an auto plant, steel foundry, and other heavy industry plants. These experiences have all contributed to his breadth of vision.

As Toffler talks, his voice is quiet and reflective. It has a gentleness that reminds me of Frank Morgan, who played several parts in the Wizard of Oz, including the Wizard. When he says things like, "We use computers as word processors," it's not an editorial or royal "we"; rather, it reflects the parity of work and thought between him and his wife and coauthor, Heidi Toffler. Like Alvin, Heidi is articulate and thoughtful. Both are good



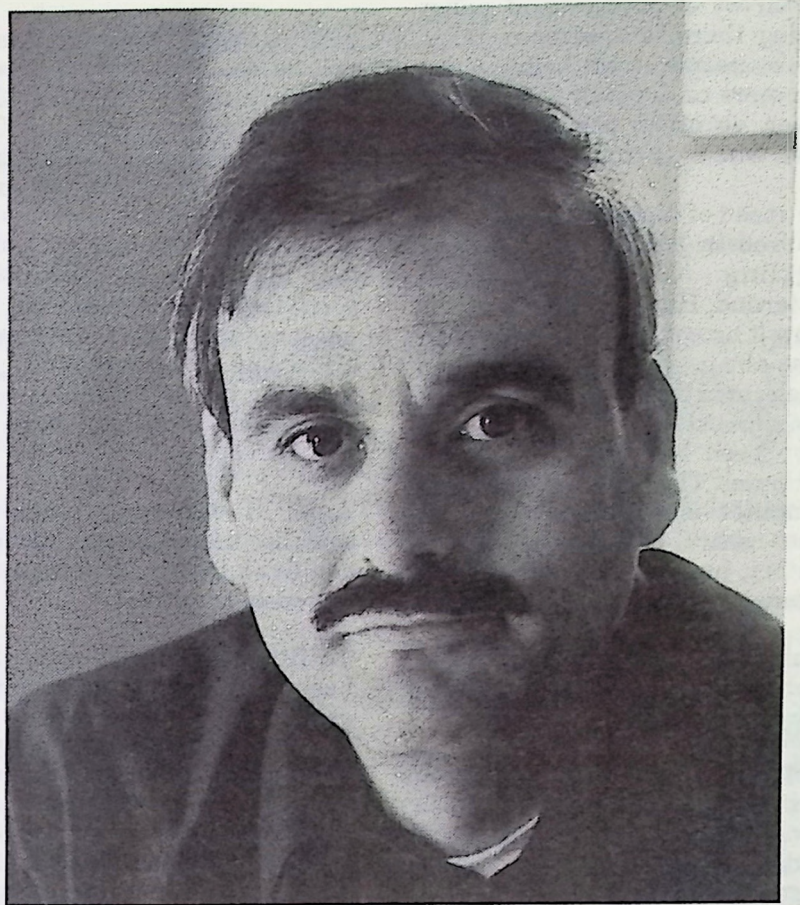
listeners, receptive to others' ideas and clear about their own points of view. A conversation with them is a very pleasant experience.

In the following interview, conducted in January, 1991 with Nick Anis, Toffler shares his thoughts on the role of technology and computers in shaping tomorrow's world.

**Anis:** You just released your third book, *Powershift: Knowledge, Wealth, and Violence at the Edge of the 21st Century*, the final volume of a three-part series. When you started -- when was it, 25 years ago -- did you plan to do a trilogy?

**Toffler:** Well, there was no plan for a trilogy at the time. In 1965 I wrote an article called *The Future As A Way Of Life*. In that article, we talked about the acceleration of change, the disorientation that many people suffered as a consequence of their inability to cope with high speed change. We coined the term "future shock" to describe that. We called on readers and their policy makers in the business of government to work on and think about long range questions. This was in 1965. Even though the magazine had a relatively small circulation there was a tremendous response -- an electric response at the time. From that point on we began working on a book that would deal with the problems of adaptation of high speed change. The book eventually became *Future Shock*.

The pre-history goes back to the late 1950's. I was a journalist in Washington, covering the White House and Capitol Hill. As a correspondent I became aware after a few years how much political activity was devoted to the past or to keeping old programs running, or to problems that were yesterday's problems -- and how little attention was paid to the future. In 1960 I drafted an article, *The Subterranean Revolution*, which foreshadowed my later work. That article was never published by the



*Nick Anis*

way. In 1965, I got it together, so to speak, and published *Future Shock*.

At the time there was no plan to write a trilogy. We felt that change was accelerating, but people at that time had to be persuaded. I remember many an argument with people who said: "What's changing? Nothing is changing." People needed persuasion even though this was the late sixties, when there was tremendous turbulence in the country.

**Anis:** You have met with many of the world's leaders or power brokers. Can you tell us how computers and technology are affecting the global shift of power you describe in your most recent book, *Powershift*?

**Toffler:** Computers and technology are affecting them very deeply but they may not even know it. The reason is that you won't find Gorbachev, or Bush, operating a

computer. But computers are used throughout their organizations and most of their exposure to them is through the military. Much of the information on which policy decisions are based, or on which political conflicts are fought, is based on data which has to some degree been massaged by computer.

This is certainly true in the military, where it's unthinkable to consider war or peace, security and defense, without computer analysis of one kind or another. In these fields, there is no question that computers and technology play a critical role.

Also, in major economic conflicts between the United States, Japan, Europe and Asia, for example, the bullets are usually computerized information. Documents such as position papers use arguments based upon, assembled, or analyzed by computers and their operators. So underneath the daily cut



and thrust of politics and policy making there is enormous influence by people down below using computers or depending for information on other people X levels lower, who in turn use computers.

The speed of decision making now required in political life is mind boggling. Gorbachev, Bush, Mitterand, Hussein, whether they know it or not, have to make decisions about events that have been accelerated by the presence of telecommunications. These, in turn, have been heavily influenced by computer. There is no question the computer is a central force, not "the" central force in the terms of history, but a central force in the dramatic political events of today.

**Anis:** How has personal computer technology changed your personal life . . . if it has?

**Toffler:** Well, it has. We had our first PC before the term PC arrived. We bought our first computer system (if you can call it a computer, really) in 1976. It was an old (then new) SOL 20, made by now defunct Processor Technology. To give you an idea of how prehistoric this machine was -- it had a gorgeous blue metal body with walnut sides and keyboard. The screen was a Panasonic television set which had been altered. And there were two blue NorthStar disk drives. The machine's capacity was 16K which we boldly worked up to 48K.

By the way, Steve Jobs, when he came to the house said "Don't get rid of this machine - someday soon it will be a museum piece." If there is any museum out there that wants it, let me know.

Some years before we got this machine we had looked at a device manufactured by Sabin company that was supposed to be a word processor. But it was clutzy, cumbersome, and difficult and we didn't want any part of it.

**Anis:** In terms of changes in your work -- were you able to process more information with a computer?

**Toffler:** Well, we use PCs as most writers do, almost exclusively as word processors, and we also do some database searching. Online searching has been less useful to us because of the actual steps to get into these services. For instance, Dialog is so seemingly complex that if you use it intermittently, you'll forget the commands. If you use it regularly, it's not too much of a problem. It's not learning these services that's difficult, but remembering it all if you're not a regular user.

**Anis:** If someone doesn't do searches themselves very often, do you think information brokers are a good alternative?

**Toffler:** Yes. In fact, several years back we employed a service that sprang up in Sacramento. They provided the intermediary service -- people called them and they did the searches. I had to give a speech in Rotterdam to an important gathering of financial people in the European economic community, and I asked the Sacramento people for additional material on the underground economy in various countries and within an hour or two I had the a sheet of rich material from around the world. It was a perfect demonstration of what can be done in information retrieval.

**Anis:** On the down side, what are some of the barriers? What kind of frustrations have you encountered in using technology?

**Toffler:** I'm now looking at my fifth word processing program. I've used one program for a number of years now but I have tried a number of others. I found them slow, and over-complicated.

**Anis:** Did you find that many of them took just too much of an investment of your time to learn?

**Toffler:** Yes. Too many of the features of these programs have absolutely no meaning for me. I need a truly stripped down, simplified program rather than these elaborate ones. I believe word proces-

sors are going toward individual customized programs, instead of a gigantic system put out by a software publisher costing hundreds of dollars, with all kinds of features that are 99% irrelevant. The solution they have come up with is to offer a simplified model which is still fabulously over-engineered for my purposes. I would just as soon spend the same \$500 for a much simpler system.

I would like to buy a complex word processing system that does everything, sit down with the programmer who wrote it, and after talking over with him which functions I'm going to use and which ones I'm not interested in, have him erase or block off those that are irrelevant, and then delete all extraneous matter from the manual and help screens.

When we get a new software program the first thing we do is write another manual. From hundreds of pages of documentation we produce a five or ten page summary of the information we need.

**Anis:** Well, heck. I should buy another set of the programs I'm using and send them to you. And then you can send me a set of Alvin Toffler quick reference guides for PageMaker, Word Perfect, Corel Draw and so forth. They would probably be more help then what I have now.

**Toffler:** It seems to me what the world is waiting for is a company that does nothing but write technical manuals. Not just for computers, for VCRs, automobiles, toasters, and what have you. But in the following way. The manufacturer submits the technical manual to this company which consists of psychologists and writers -- not a single engineer in the lot. The company organizes focus groups. These focus groups are given the product to use. After 30 days the focus group is asked what didn't you understand, what didn't you use, and what's missing. Then with that information, a writer writes the instruction manual rather than an engineer. This way the



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## PRESENTS

The new **User Manager** for TDBS systems, the full registration and member tracking system that is a true member data base. It has keyword search, on-line user resumes to help users get to know each other, a notepad to let you keep notes on every user, etc. It will present SysOp defined text messages on pending expiration of membership and make the necessary access changes on expiration. Allows users to join as members or renew their membership using credit cards on-line.

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manual has been tested in advance, just like any other component of the system.

**Anis:** How has the U.S. global work force been affected by the accessibility of personal computers?

**Toffler:** The U.S. work-force was the world's first to familiarize themselves with PCs. This gave the U.S. work-force and the American economy an edge because computer literacy is a critical component for productivity. However, other companies soon began to catch up. Japan was slower in this process because of the idiographic basis of their language. It was harder in the early days to create simple, workable software -- word processing and other office functions. Once they cracked that problem they began very quickly to catch up and perhaps even exceed the United States in desktop literacy. Soon we are going to see wider and wider circles of computer literacy around the world. Work-forces in other countries like India and so forth now regarded as "backward" will be increasingly capable of handling PCs and networks and will begin to compete with the American work-force for functions now being performed at home.

**Anis:** Where do you see the accessibility of PCs in the work-force heading?

**Toffler:** I think the PC is going to merge with other technology so that the PC, television set, and telephone eventually will be combined into a single versatile unit as simple to use as any of the individual components. This will eventually become ubiquitous -- everybody will have this technology at hand just as today they have telephones and T.V.s. Its going to be as common in culture and the work place as pencils and paper in earlier generations.

**Anis:** Telecommuting has loomed as a coming force in the way we work for years. But it has never reached wide spread acceptance. Why hasn't it reached its potential?

**Toffler:** I think it's getting there. There have been some misconceptions about what we said about telecommuting in *The Third Wave*. The misconception is that telecommuters are people who work from their homes full time. The reality is not that we are going to have millions of people who clock-in to their company's switchboard at 9:00 a.m., do their job, and then clock out by hanging up. The reality which already exists is that millions and millions of people do some of their work at home. In fact, for years, when speaking to groups about this topic I start out by saying everybody knows that they might work in the office for three weeks, and then take the work home to finish it in the next or fourth week because the office is a purely unproductive place to get work done.

At which point there is almost always a smile and laugh of recognition in the audience, because people know that, for individual thinking, the office is not necessarily the place to do it. Publications like *Home Office Computing* report that 24 million people do some work at home and 12 million do the equivalent of one day a week.

**Anis:** What's holding back telecommuting from reaching its full potential?

**Toffler:** One barrier is the corporate fear of loss of control. Another is the reality that people do need face-to-face contact to do their jobs well. They can't just work at a distance as part of large company. They also need the contacts, information, and social relationships. The key thing is the actions of what I would call a facilitator -- something between the individual and the employer. Apart from the self-employed, the computer consultant, writer, and so on, there are the zillions of people in the work-force who have never worked at home. There is too big a gap between the members of the work-force and the large corporation.

**Anis:** Do you see an acceleration in telecommuting with the Gulf Crisis and other energy-related considerations upon us?

**Toffler:** Yes. I think when there are higher energy costs for transportation or if any shortages develop there will be more pressure to work closer to home if not indeed in the home.

One of the chief obstacles to the even more rapid spread of telecommuting has been the obsolete accounting systems used by corporations to assess their costs. Because of the way accounting is done there is no consolidation of the costs attributable to concentrating work in large centralized locations. For example, a company doesn't note any place in its normal balance sheet or accounting ledgers the fact that part of the wage increase it must give is actually a hidden transportation subsidy to the worker. The worker has to have enough money to cover transportation if getting to work is costly. Companies also wind up paying for a whole infrastructure made necessary by highly concentrated work forces such as locker rooms, cafeterias, parking lots, security, etc., and a whole lot of other facilities that become less necessary as an increasing number of workers spend at least part of their work time at home. Above all the centralization of work has led to very high downtown real estate business taxes. If accountants ever toted up all of these various costs, that are at least partially attributable to the idea that workers all have to be in the same place at the same time, they would discover the enormous potential advantages of decentralizing work and allow and encourage much more of it.

**Anis:** Can you give our readers an idea of what it took to do a book like *Power Shift*? Did you have a staff of researchers? Do you rely on outside research? Who are some of the people you talked to?

We receive applications for jobs in our research center from all over the world. Recently one came from as far away as Yerevan in Soviet Armenia where a social researcher



wanted to come to work in our center. The problem is there is no research center. The research center consists of myself and co-author, Heidi Toffler, my spouse. The two of us do 99.9 percent of all the research connected with the preparation of these works. Our entire staff consists of the two of us and one assistant who handles our administrative and logistic chores and media relations so that we can get on to do the things we need to do.

**Anis:** Who are some the people that you have talked to in the course of your research?

**Toffler:** In the course of researching *Powershift*, and the other books as well, we had the opportunity to meet and speak to some of the world's most famous and powerful people ranging from Mikhail Gorbachev, Ronald Reagan, and George Bush on down to cabinet members and top business people all over the world. However, it is equally important, it seems to us, to meet with people who are so called "ordinary people" because the people on top frequently don't know much about what's going on within their own institutions. It's the people down below actually performing operations who are in touch with rapid change and who provide a reality check against which the opinions of the top people must be checked.

There is also a very important consideration. On one hand journalists do leg work -- they go out and meet people in their jobs, around work, and whatever. However, they seldom have the time for academic or scholarly research and therefore, what they write lacks a certain dimension or perspective. On the other hand, academics and scholars tend to spend their time in libraries and seldom have an opportunity to check what they read against what's really happening in the outside world. We have tried to combine the skills of the scholar with the hard traveling of the journalists. By putting these two together we try not only to give dimension and perspective to changes in today's work world, but

to do so in a way that is comprehensible and lucid for ordinary readers.

**Anis:** So you are a cross between a journalist and an academic?

**Toffler:** I'd say we are writers -- authors. We try to bring to the work that we do some of the skills mentioned earlier.

**Anis:** You and Heidi do a great deal of traveling. I imagine you belong to a number of frequent flyer clubs. Have you noticed a lot of laptops and portable computers in flight?

**Toffler:** Of course. We see laptops on every flight. And now we're starting to see the notebooks. We've used our laptop in Geneva, Chigatga, Tokyo and all over the United States.

**Anis:** Have you noticed any changes at the hotels relating to technology and computers?

**Toffler:** Sure. We have used newly installed telephone jacks in hotels to transfer files by modem. In fact, I remember one hotel in which they came in and literally wired the room for us and then charged specially for that service and didn't want to leave any equipment in the room because it might be stolen. If you wanted to use a computer you had to call down to what they called engineering and they would bring a jack for you. But certainly everywhere now, hotels provide jacks for telecommunications. In fact, we get a fax machine delivered to our hotel room so that we have our own private fax when we travel.

**Anis:** What are the implications of the widening gap of technological "haves" and "have-nots"?

**Toffler:** We have written about this in *Powershift*. We run a risk of dividing a society very sharply between those with saleable knowledge and functional knowledge or those with less -- those who are kept out of the system because they don't have adequate work skills or access to the kind of education that is necessary to participate in the economy. This is not

just a domestic problem in the United States. This is true for all of the high-tech societies to one degree or another. But also there is another dimension of this. In the coming years we are going to see the development of what we would call third wave sectors or high tech/high service/high communication sectors in most countries including developing countries. But that these sectors might well turn out to be disconnected from the rest of their own country. In other words, you may very well find an advanced educated technologically up-to-date segment of the society increasingly cut off culturally, economically and politically from the mass peasants who form the base. This could present a severe political danger of instability in the world.

**Anis:** A number of people in the online world are calling for a form of electronic democracy. Under these proposals voting for candidates, communicating with public representatives, even accessing the legal system would be done by computer. Will we have an electronic democracy one day? What would be the effect?

**Toffler:** We are going to make more and more use of electronic communication in our political lives. This is going to take many many forms. The one fear that has been raised repeatedly and legitimately is that of a no-brain kind of participation in which an instant poll takes place that results in an action. If that had been the case in the hostage crisis in the early 80's -- if someone had polled the American people we probably would have nuked Teheran. So, we believe there has to be a human intermediary between any polling and any decision. A decision should not be simply a programmed consequence of polling.

On the other hand, we can use electronics to create a much more responsive democracy. For example, the founding fathers -- founding parents as we call them, of this nation, were torn between two counter-principles. One was that if you elected representatives for



short terms they would be more responsive to the citizen's will because they could be voted out more easily. On the other hand, the turnover would mean they had less experience. Therefore we wound up with a system under which senators get elected for six years and house members get elected for two years in an effort to somehow bridge the gulf of that contradiction.

There is, however, many alternative ways of organizing a democracy. For example, one could organize a political system in which, let's say, each congressional district elects both a Democrat and a Republican to serve the same seat. You then poll the voters of that community continuously -- for example, weekly. And you adjust the fractional vote of each representative in accordance with that week's poll so that the democrat that week may have 65% of one vote and the republican only 35% of one vote. In which case a constant polling would raise or lower their influence without necessarily shortening their terms of office.

So there are a variety of ways in which polls and electronics can be used to design a 21st-century democracy. But this requires a degree of imagination that is lacking in our system and in our political science by and large and also has to be done with exquisite care. Therefore it should be tried out on a local basis rather than nationally or globally before we commit ourselves to structural changes.

**Anis:** As we do this interview here the Gulf crisis seems to be on everyone's mind. What role is technology playing in Operation Desert Storm?

**Toffler:** I think that something very revolutionary in the history of warfare is taking place even as we speak. The character of war is being transformed for all time. This is not just a question of technology as represented in the air strikes against Iraq. But rather the introduction of a whole new level of warfare. It's a phase step or a dialectical leap. If we look

broadly at the development of war we see that it parallels the nature of the dominant technology and characteristics of a civilization. In first wave societies or Agrarian societies before the industrial revolution the basic character of production was hand-crafted and the basic nature of war was hand-to-hand. When the industrial revolution launched the second wave of historical change factories became mechanized and war became mechanized. We saw the development of the machine gun as a weapon of mass destruction paralleling the development of industrial mass-production. In short, the industrialization of warfare occurred right along with the industrialization of the economy.

Now we are living in the beginning of the third wave of change in history and we are seeing the development of the third wave of warfare. Third wave warfare is knowledge-based. In *Power Shift* we point out that social and political power has always been based on a combination of violence, wealth, and knowledge. But what has happened today is that violence has become dependent on knowledge to a degree no one could possibly have imagined. As a result the war that is now being waged in the Gulf is the first third wave war. It's a war in which computers, systems integration, databases, knowledge, strategic insight, and high level training for the individual soldier, are the dominant resources.

Now we may very well find ourselves in a ground war in which masses of men hurl themselves against other masses of men using more conventional weapons. This would be a second wave war along with the third wave war that is now going on. We might unfortunately find some of our forces in the unfortunate situation of engaging in hand-to-hand fighting just as warriors or gladiators did thousands of years ago. But what has happened is that a new layer, level, or kind of warfare new not just in quantity but in quality has just emerged on the face of the earth.

We are witnessing something truly historic in the development of the human species.

**Anis:** A network of computer bulletin boards in the United States is relaying messages to the U.S. and Allied soldiers via personal computer e-mail. Once the messages reach Saudia Arabia they are hard copied and delivered. So far, these are only one way communications. Will e-mail ever become a competitor to telegrams and the U.S. mail?

**Toffler:** I don't think much use is being made of telegrams today. Telegrams have probably lost the dominant position they have had in the past. I can't remember when I last got a telegram but I can sure remember when I got a fax because it was in the last half hour. What is happening is fax has replaced the telegram and is replacing post offices. The universalization of fax and its eventual merger with PC technology, which is already occurring, will result in the replacement of another second wave institution, the post office. It will be replaced by direct communication through the electronic infostructure -- from sender to receiver and back.

That this should reach out to the military forces in the Gulf is a great surprise. Most soldiers aren't carrying fax machines in their backpacks. That wouldn't be practical. But it is clear that electronic communication is going to replace the old ways of delivering mail to soldiers from home.

**Anis:** Is e-mail going to gain more ground or is fax going to continue to be dominant?

**Toffler:** If we continue to put fax into PCs there is going to be a fusion of fax and PC technology. We are still lacking inexpensive optical character reading hardware and software. Once homes and businesses can receive a fax which can be read into computer by OCR or received directly into the computer things will be different.



My personal experience is that fax is what is dominant out there. Like fax, which is in more wide spread use, e-mail is only an alternative if available to both sender and receiver. I'm anxious to see these technologies merge. I would like to be able to store and manipulate these messages not as images but as characters. I realize e-mail can already give me this but people aren't sending me e-mail - they're sending me faxes.

**Anis:** What role do you envision for computer bulletin board systems as an individual publishing medium?

**Toffler:** I think that they are one of a number of technologies that already have encouraged experiments. For instance, co-authorship. I was involved in something called the electronic information exchange which was funded by the National Science Foundation. This goes back into the mid 70's. And I think it was one of the first electronic civilian e-mail networks. There were whole groups contributing sections of books on this network.

In *Power Shift* we describe a use being made by engineers at DEC in which they exchanged design improvements and so forth online. These conferences take on a kind of life of their own separate from their organizations. In the DEC engineering group the participants may physically be in Hong Kong, Taiwan, Mission Mass, or Amsterdam but they communicate with one another. They take the initiative and decide they want to meet with one another in Geneva and sit down with each other person-to-person. They make this determination without having to get management's approval.

They also have developed a way of creating or formulating group goals. In this group each member of the network is expected to put forth on the network what his or her goals or objectives are. And then everybody in the group comments on these goals. From this process they eventually form a

team goal. I think this is an example of one of many good uses for these systems.

**Anis:** What do you think will be the impact of the "National Super Highway" bill sponsored by Senator Gore? For the clarification of our readers, this bill will create a 3 gigabit-per-second digital network connecting universities and the Library of Congress. Is this bill going to give access to supercomputers like Cray and some of the U.S. Government's massive data banks to everyone?

**Toffler:** I don't know all the technical details of this bill but the idea that we need electronic super-networks is beyond question. This is the infrastructure of the twenty-first century. That we still think of pouring concrete as more important than developing the electronic infrastructure is appalling. Networks like these are a critical step forward.

**Anis:** How do you think privacy concerns as far as government and business collecting increasing amounts of information on U.S. citizens will be settled. Or do you think it's inevitable that people are going to have less privacy in a computerized society?

**Toffler:** George Orwell in his famous work *1984* crystallized for all time probably the fear of invasion of privacy by Big Brother. But Big Brother for Orwell was government. What we are seeing today is the emergence of many Big Uncles. And they are not governments -- they are corporations collecting data about individuals for commercial advantage, and selling that information or using that information for a variety of profit making purposes. I don't see that there is anything inherently wrong with a corporation trying to figure out what the markets want -- what customers need or want and trying to find this kind of customer information. In theory this provides a more fluid, more efficient economy. But obviously there are dangers attached to this. I don't feel that a credit card company or a credit reporting agency or any organiza-

tion that I do business with should necessarily have access to what I read, watch on television, or say. To a suitable degree, this kind of information about individuals is becoming available. And privacy is going to become a political bombshell issue in the years to come.

**Anis:** Is technology too male? Do you think the steady growth of women getting involved in using and designing computer products will change anything?

**Toffler:** I hope so. I hope that all women will be more involved and more influential in the entire technological system. I don't believe in the assumption that women are going to necessarily come up with different solutions to the same problems. But to the degree that their life experience is different from that of men, they may very well have insights that would be less common among men who have a different daily life experience. The executives and technology specialists that I meet frequently think in terms of sports metaphors. Football or baseball-- golf-- are very important to their thinking. And as a result, I think frequently they rely on certain analogies drawn from those sports.

Women on the other hand, have a different set of life experiences and draw different metaphors. The process of analogizing and making metaphors is extremely important in creativity and design. So I think that there is something there to the concept that more women in the field will enrich the field considerably.

Also we have to think about the next phase when more and more of our technologies are in fact, biologically based rather than mechanically based or electronically based. When there is a fusion of all of these I think we are going into what is going to be a very strange culture. The traditional programming of the male for life in a bureaucracy at work and certain kinds or forms of competition may prove increasingly inappropriate.



**Anis:** When we had dinner the other night you expressed some thoughts on women in leadership roles. How do you compare men and women in leadership roles?

**Toffler:** Well, you see Margaret Thatcher or Golda Meir in Israel years ago, or Indira Ghandi were women political leaders. There was not a great deal to distinguish their leadership from male political leaders. They were tough. They were strong. They were intelligent. They did many of the things that male political leaders had done. So I don't believe that women mean automatic kindness, sweetness, and gentleness. I don't think the world would be kinder, gentler place if run by women. I do however think, as I said a moment ago, different experiences lead to different ideas and solutions to problems.

**Anis:** Graphical User Interfaces such as Microsoft Windows and the Apple Macintosh offer are proving very popular. But even computer luminaries like Bill Gates and Mitch Kapor have said personal computers are still too hard to use. What does the computer industry have to do, or what do you see on the horizon technologically that will get more people involved in personal computing?

**Toffler:** All of the steps that we have taken through Microsoft Windows and so forth are primitive. The real break through will not come until people can deal with their computers as they do with a person. That is to converse with it in natural language. Therefore speech technologies are the key -- voice recognition and optical character recognition (which is relatively easy when compared with voice recognition). Voice recognition is particularly crucial. So long as it's not possible to have a friendly conversation in natural language with a computer it will remain user un-friendly.

We can chip away at that unfriendliness. That's what we are trying to do now. We are trying to find alternative ways for people to deal with computers. Some people

like pull-down menus. Other people prefer to remain with DOS commands or what have you. But this is all still slim pickens compared with what would happen with machines themselves smart enough to recognize users.

**Anis:** What time frame do you think we are looking at for computers to be achieve this user-friendly natural interface?

**Toffler:** I'm not equipped to give a good technical answer to that question. But whatever time the experts say -- cut it in half. The reason I say that is there have been studies that forecasts made by experts measured against forecasts made highly skilled and intelligent people outside have come up with different findings. People inside -- the experts coping with the complexities of speech recognition, for example, and any other major problem tend to have a more pessimistic forecast. This is because they recognize all the problems. People who are, let's say, some specialist in some other field looking into this particular area we are talking about tend to be more optimistic. The insiders may be less accurate because they project linearly from their problems whereas unexpected breakthroughs tend to accelerate the process.

*[Nick Anis is a freelance writer who has co-authored a number of best-seller computer books including Dvorak's Guide to PC Telecommunications, Glossbrenner's Complete Hard Disk Handbook, Dr. File Finder's Guide to Shareware, and Dvorak's Guide to DOS and PC Performance. Powershift: Knowledge, Wealth, and Violence at the Edge of the 21st Century - \$27.95 is published by Bantam Books, 666 Fifth Avenue, New York, New York, 10103; (212)765-6500 - Editor]*

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## LONG DISTANCE USA

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### SAUDINET - SENDING MAIL TO THE TROOPS

In our January issue, we mentioned the SAUDIechomail conference operating within FidoNet to allow callers to enter messages, at no cost, for paper delivery to the troops in the Middle East. This has drawn some reader inquiry for further details so we thought we would revisit the story.

The basic concept of SAUDINET started last September with Mark Niswonger, a teacher in Manteca California. In addition to teaching computer classes at the Regional Occupational Program, part of the local adult education program, Niswonger also operated a BBS titled *The CrossRoads* at 209-825-3103. He thought it would be nice to allow students to enter messages to soldiers and airmen stationed in the Middle East. He contacted Rick McLin, an Aramco Oil Company employee and co-sysop of the Abqaiq Personal Computer Society BBS in Abqaiq (pronounce as if hacking up a flu lung oyster) Saudi Arabia. Abqaiq PCS is one of the oldest PC user groups in country and their system operates on three nodes at 966-3-572-3884, -2197, and -2749. Though Rick McLin was recalled to the U.S. on business, this is still essentially the link used to pass messages for SaudiNet. Gary Stevens of Abqaiq PCS is the current system operator.

In October, Niswonger spoke with Gary Lagier, sysop of Turbo City BBS 209-599-7435 in Ripon California. Lagier suggested they fly the idea of an echomail conference by members of their Northern California Valley sysops group. By the end of October, over 50 systems carried the echomail conference and callers to any of the systems could enter a message to a specific serviceman, or to "Any Serviceman" and it would be delivered once per week to the system in



Abqaiq. Members of the Abqaiq PCS printed the messages out on a laser printer and delivered them some 70 kilometers to the 82nd Airborne postal authorities.

The idea caught on. So many systems wanted to carry the echo, that the founders established a new subnetwork titled SaudiNet. Todd Looney, operator of **Vietnam Veteran's Valhalla BBS (408-298-2740)** in San Jose California was named International SaudiNet Coordinator in January. The February 8th SaudiNet nodelist lists about 300 systems in the new network and according to Looney, gateways to Internet and other networks may be providing access to as many as 3000 systems total. The conference currently handles 400 to 600 messages daily and the resulting 5-6MB of mail is delivered every third day.

If the response from Fidonet BBS systems operators has been positive, the response from the military has been gratifying as well. The group sent a letter to General Colin Powell. A reply from Lt. Gen. James Cassity, Director of Command, Control, and Communications in the middle east theatre expressed both gratitude and cooperation from the military forces. And apparently the military intends to go beyond that. They have provided Civilian Commissions, transportation, and support to four system operators who will fly to Saudi Arabia toward the end of February to set up a new, larger, FidoNet-style mail hub in country - co-located with the military postal facilities in Riyadh. Included among the system operators making the trip is Bill Franklin, technical coordinator for SaudiNet and operator of the **RiverCity BBS (815-434-4430)** in Ottawa Illinois.

The project has gained the support of several Senators and Congressman, most notably Senator Christopher Bond of Missouri. A number of companies have also pledged support for the project. Contel, the local telephone company in Northern California has provided a grant to cover the \$12 per minute

long distance telephone calls to Saudi Arabia. U.S. Robotics is contributing modems for the connection and Novell is supporting it financially.

With such participation among BBS system operators, it would be unlikely for anyone in the country to be beyond local dialing distance of at least one FidoNet BBS participating in SaudiNet. The trick is finding them of course. Looney maintains a weekly updated list, available for download by anyone, at his **Vietnam Veteran's Valhalla BBS at 408-298-2740**. File area 13 contains the latest SNETLIST file listing systems carrying the echomail conference. With his permission, we reprint the contents of that list in the accompany SaudiNet list in this issue. Todd Looney, 1505 De Rose Way #6, San Jose, CA 95126.

#### TURBOTAX SUPPORT BBS

It's that time of year again and Uncle Sugar does want his pound of flesh via a tax on income. Often worse than actually paying the money is figuring out how much of it to pay. Our system of tax laws has grown to gargantuan proportions and even the best efforts at "simplifying" just seem to make it grow more. At this point it would seem that not one good man actually "knows" the tax law and the annual ante now resembles more of a negotiated settlement than a levied tax. The stories of misinformation from the IRS are so cliché at this point that journalism graduates may expect to do the story on the "percentage of wrong answers from the IRS help lines" as part of their coming of age at their first newspaper or television station.

The personal computer has essentially given Joe Citizen a bureaucratic tool of his own with which to fight back. From the early 1040 templates for Lotus spreadsheets, we've moved into dedicated software programs that allow you to enter a few choice tidbits of your personal life, and in response, generate a hurricane of paper in quan-

ties sufficient to keep a Mongol Horde of IRS people happy for weeks.

Chipsoft Inc. has enjoyed some large measure of success with their **TURBOTAX PERSONAL 1040** program. Chipsoft has done so well in this market that they've expanded their line to include state income tax forms, a professional tax preparer's package, and several general accounting tools.

The Turbotax program has improved noticeably each year. A retail price of \$75 has made it attractive to many. Version 8.01 of this product began shipment January 25th. Turbotax not only allows you to fill out your 1040 form and ALL supporting forms, but it will actually print out the data on an IRS approved form - particularly attractive output if you have an HP Laserjet Series II compatible printer. In this years release, they add a "Consult With Turbotax" feature along with a "Next Logical Step" function that borders on artificial intelligence. If message traffic on their support BBS is any indication, their customer base LOVES it. Individual state income tax forms are also available at \$40 per state.

The company provides online support via a PCBoard bulletin board system at (619)453-5232. The system provides information on all their products along with, news of updates, and a message area where they answer user inquiries on various problems with the software. They do NOT provide any online tax assistance, citing some rather unlikely legal restrictions. And there is no real handy means to order the product online - which we found surprising. They do have an order form you can download, fill out with an editor, and then upload. But it would seem they are largely missing the point of providing an online service. They do provide a demonstration program for download titled **TTAXDEMO.EXE** if you want to see what the interface looks like.



# BOARDWATCH MAGAZINE

## List of BBS Participating in SaudiNet

TITLE	TELEPHONE	SYSTEM OPERATOR	LOCATION
The Ultra Project	203-229-9833	Scott Mozden	New Britain CT
Ultimate BBS II	203-468-6619	Mark Terrace	North Branford CT
The Plainfield News	203-564-8579	Lawrence Kolada	Plainfield CT
Club Cougar	203-623-3518	Paul Monaco	East Windsor CT
The Hub	203-663-1147	Steve Sekula	Killingworth CT
Fantasy Zone	203-746-4832	Andy Magoon	New Fairfield CT
Mystical Madrigal	203-779-3173	Robert Johnson	Killingly CT
The Midnight Run	203-827-9741	Rick Soderburg	CT
Norad BBS	203-846-3522	Bill Hurlock	Norwalk CT
EarthStation 101	203-865-6960	Matt Vallean	New Haven CT
Ultimate BBS I	203-949-0375	Andre Normandin	Wallingford CT
Small Computer Tech Center	205-264-0316	Ray Gluck	Maxwell AFB AL
The Gateway	205-271-3545	Kim Vanhunnik	Montgomery AL
StarScan (sm)	205-279-7313	Tom Jones	Montgomery AL
Floyd's Folly	205-365-0081	Floyd Drennon	Prattville AL
The Fuzzy Project	206-475-7185	Tom McCain	Tacoma WA
Vanguard II BBS	206-536-7121	John Haste	Tacoma WA
Group Medical BBS	206-582-3212	Ismail Arslangiray	Tacoma WA
Data Land BBS	206-584-7305	Art Coon	Tacoma WA
John's Genes	206-756-5160	John English	Tacoma WA
Kelthley Komputer	206-759-2144	Susan Cox	Tacoma WA
The BoardRoom BBS	206-847-1763	Bill McPhail	Graham WA
The Last Frontier	206-847-8168	Mark Pittenger	Graham WA
Silver And Steel	208-237-3435	Linker Fuller	Chubbuck Id
The Lions Lair BBS	208-356-8522	Larry M. Adams III	Rexburg Id
AT&T BBS	209-367-0787	Bill Baker	Lodi CA
FlightLine of dBase	209-551-2258	Stephen Edgar	Modesto CA
TurboCity BBS	209-599-7435	Gary Lagler	Ripon CA
The CrossRoads	209-825-3103	Mark Niswonger	Manteca CA
Goldstein's Folly	213-550-6958	William Goldstein	Beverly Hills CA
Master Control	214-238-1805	Roger Williams	Dallas TX
Suburbia	214-258-6634	Tim Jespersen	Dallas TX
Verbose Ink	214-437-0914	Clay Tinsley	Richardson TX
The Exchange	214-517-8553	Mike Bloom	Plano TX
High Landrons	214-578-0539	Lynn Curtis	Plano TX
Squirrel Talk	214-594-7911	Jimmy Kitchens	Irving TX
The Bar-None Ranch	214-625-5325	Dennis Morgan	Dallas TX
BusLink BBS	215-269-1660	Ray Waechter	Downingtown PA
The Tech Connection	215-273-2606	Bill Hamel	Honey Brook PA
ECB Systems	215-755-1917	John Steele	Philadelphia PA
Crystal Marine	215-949-0320	Bob Stahl	Fairless Hills PA
Nerd's Nook	216-356-1431	Butch Walker	Rocky River OH
Northampton Data	216-928-8565	Todd Smith	Cuyahoga Falls OH
The Workshop	217-352-6168	Paul Stansberry	Champaign IL
The Satellite BBS	217-643-2396	Jim Fischer	Thomasboro IL
The Grimace BBS	301-544-4629	Larry Grim	Fort Meade MD
The Fire Station	301-866-8613	Jim Henthorn	Baltimore MD
Pinecliffe HST DS	303-642-0703	Craig Baker	Boulder CO
Ramblin' Roots	305-221-1571	Barbara O'Keefe	Miami FL
The Weatherman BBS	305-238-6390	Ernie Jillson	Miami FL
MORTONS BARN	305-246-3339	Tom Morrow	Homestead FL
A Little R & R	305-266-1099	Robert Jones	Miami FL
Doorway BBS	305-341-6919	Tim Mills	Coral Springs FL
Sunshine PCBoard	305-432-2223	Michele Hamilton	Pembroke Pines FL
Cygnus BBS	305-437-1284	Bonnie Lind	Pembroke Pines FL
ENTERPRISE!	305-557-1802	Arturo Batista	Hialeah FL
The Pet Place	305-624-2190	Dia Spriggs	Miami FL
The Software Cuisine	305-642-0754	Peter Hebert	Miami FL
SOX! The SysOp eXchange	305-821-3317	Ronnie Toth	Hialeah FL
FIU Sci BBS	305-940-5740	Raymond Galleno	North Miami FL
Silver Slipper BBS	309-346-6829	Ed Henry	Pekin IL
Planet	314-443-0319	Tim Kilgore	Columbia MO
The Blos BBS	314-443-2668	Denis Hancock	Columbia MO
DOC in the Box BBS	314-893-6099	Mark D Winton	Jefferson City MO
Summit Forum	314-896-5343	Scott Whiting	Holt's Summit MO
Knights/Square Table	314-941-3672	Joe Crosby	Wentzville MO
The Engine House	315-451-7148	John Perkins	Liverpool NY
Muncie MicroLink	317-284-0796	Steve Stewart	Muncie IN
The I.O. Board	317-644-3039	Bert Happel	Anderson IN
IndyServe QBBS	317-849-4007	Paul Followell	Fishers IN
Software Dimensions	317-857-2732	Bill Atkinson	Ridgeville IN
Golddust Plantation	318-424-0375	Ralph Wade Phillips	Shreveport LA
Duffey's Tavern	318-436-2992	Gordon Kaough	Lake Charles LA
Malden Voyage	318-527-0238	Jimmy Woolford	Sulphur LA
Fort Polk Info Board	318-537-3620	Tim Flynn	Fort Polk LA
Dawn Patrol	318-797-8310	Paul Browning	Shreveport LA
Interuniverse Gate	402-896-3545	Jack Winslade	Omaha NE
The Automotive BBS	403-752-3930	Volker Manns	Raymond ALB
Centurion BBS	404-296-9681	Steve Antonoff	Stone Mountain GA



# BOARDWATCH MAGAZINE

## List of BBS Participating in SaudiNet

TITLE	TELEPHONE	SYSTEM OPERATOR	LOCATION
Southern Crescent	404-366-1436	Chris Bradford	Forest Park GA
Mainframe Exchange	404-429-1714	Tom Duffy	Marietta GA
Midnight Madness	404-487-5329	Tom Keyes	Peachtree City GA
Ed's Place	404-532-1978	Ed Ivey	Gainesville GA
Classic City Node#1	404-548-0726	Charles Harper	Athens GA
The BackWoods BBS	404-561-6106	Bob Kruger	Columbus GA
Adult Fun Castle BBS	404-685-1455	Robert Carter	Fort Benning GA
Route 66 BBS	404-769-0318	Greg Shaffer	Bogart GA
Night Owl BBS	404-822-4108	Gary Taylor	Lawrenceville GA
Phoenix StarFighter BBS	404-869-3410	Danny Sosebee	Lula GA
Fingers Talk	405-248-1563	Ann Stalnaker	Lawton OK
Blink's Barn	405-357-2473	Chuck Bridwell	Lawton OK
The WordShop	405-765-0951	Wayne Majors	Ponca City OK
#1 Marketplace Sq	405-787-1624	Ed Price	Bethany OK
411 Information BBS	407-323-0025	Dave Higgins	Sanford FL
The Freedom Line BBS	407-423-2111	Dale Malone	Orlando FL
VOC TECH	407-471-3024	Herman Matos	West Palm Beach FL
The Twilight Board	407-547-7942	Jesse Sipprell	Lake Worth FL
E.I.L.C. BBS	407-676-2998	Michael Baumann	Palm Bay FL
The Trojan Express	407-832-8971	Juan Perez	West Palm Beach FL
Data Port BBS	408-259-3019	Ian Robertson	San Jose CA
Twin Pillars	408-292-0472	Jesse Deaton	San Jose CA
Vietnam Vets Valhalla	408-298-2740	Todd Looney	San Jose CA
Mountain Retreat	408-335-4595	John Jamleson	Felton CA
Unconfirmed Rumours	408-456-0339	Woody Millron	San Jose CA
Wild Thang	408-578-5325	Marc Lawrence	San Jose CA
Lynn-Western Newswires	408-778-5994	William Golden	Morgan Hill CA
Top Gun	408-972-1548	Mike West	San Jose CA
Thiel College	412-589-2039	Thomas Nichols	Greenville PA
Shen Vally Educational	412-962-0765	Thomas Nichols	Sharpsville PA
VETLink #1	413-443-6313	G Joseph Peck	Pittsfield MA
Field Street	413-684-1938	Vern Pero	Dalton MA
The Armageddon	414-749-0010	Andy White	Appleton WI
Top Gun j1 BBS	414-796-8408	Steve Richardson	Brookfield WI
SeaHunt BBS	415-343-5904	Michael Nelson	Burlingame CA
AnyBody's BBS	415-727-0442	Kevin Sibley	Castro Valley CA
GameMasters BBS	415-965-4097	Byron McKay	Mountain View CA
Medical Mile	417-863-1327	James Jones	Springfield MO
Plaza Communications BBS	417-887-1790	Harry Spicer	Springfield MO
The Bellfry BBS	419-353-8397	Jon Bell	Bowling Green OH
Toledo Home Education BBS	419-476-0389	Jim Dudzik	Toledo OH
McScott's BBS	501-532-6212	Scott McKnight	Blytheville AR
Fido-Racer	502-762-3140	Bill Allbritten	Murray KY
Acacia BBS	503-283-1358	Ted Rolfe	Portland OR
Sea Breeze BBS	503-286-0931	Ted Meyer	Portland OR
Trade Winds	503-297-4070	David Lutjen	Portland OR
Disk Jockey BBS	503-636-4947	Mike Gottlieb	Portland OR
AfterBurner!	503-650-8727	David Stults	Oregon City OR
The Bull Pen	503-652-5803	Bob Currie	Milwaukie OR
The Full Moon BBS	503-692-6173	Carl Eshelman	Tualatin OR
Grampa's House	504-282-0273	Donovan Livaccari	New Orleans LA
Ram-on Line BBS	504-283-2817	Angelo Gioroso	New Orleans LA
The River's Edge BBS	504-294-5027	Brian Stanga	Ponchatoula LA
NOPC Club	504-436-1887	Dave Davis	New Orleans LA
The Lion's Den	504-542-2640	John Dias	Hammond LA
Players Palace	504-563-7185	David Rodrigue	Houma LA
Computer Associates	504-851-4473	Rick Luquette	Houma LA
The Preacher OnLine	504-878-3023	Ray Waldo	Loranger LA
The Generic BBS	504-885-0118	Mitch Williams	New Orleans LA
CompuChurch BBS	504-927-4509	Alan Jennings	Baton Rouge LA
Casa De La Luz	505-437-8267	Chuck Haynes	Alamogordo NM
Fire Fly BBS	508-356-2469	Richard Alfoni	Ipswich MA
Cul-de-Sac	508-429-1784	Pete White	Holliston MA
IBM Tech Fido BBS	508-433-6491	Steve Ahola	Pepperell MA
Dave's Opus	508-454-3864	Dave Layte	Lowell MA
Adventure Unlimited	508-454-9515	Dave Villneau	Lowell MA
Denis' OPUS!	508-772-6373	Denis Marchand	Ayer MA
The Machine	508-948-2921	Ron Bergeron	Rowley MA
SunDial BBS	509-545-1789	Rick Aldrich	Pasco WA
The Hide Away BBS	509-586-0104	Wayne Stewart	Finley WA
SunDial II BBS	509-586-9034	Paul Huber	Kennewick WA
The File Cabinet	509-946-3965	Duane Wessels	Richland WA
The Yakima Atari ST	509-965-2345	Pat Moffitt	Yakima WA
Electric Sub-Station	512-359-8904	Michael Trainer	San Antonio TX
The BORED!	512-383-0471	Robert Garcia	Edinburg TX
Soft World BBS	512-383-9898	Michael Skurka	Edinburg TX
Martin's Domain	512-396-0252	Jeff Martin	San Marcus TX
Button/Dietz BBS	512-442-6091	Allen Dietz	Austin TX
Currents	513-253-2476	Randy Brown	Dayton OH



# BOARDWATCH MAGAZINE

## List of BBS Participating in SaudiNet

TITLE	TELEPHONE	SYSTEM OPERATOR	LOCATION
FireHouse BBS	513-256-0399	Dean & Teri Tarter	Dayton OH
The Falcon's Nest	513-294-1900	Robert Graham	Ketterling OH
Peace Net	513-751-4009	Michael Chowning	Cincinnati OH
Alternatives	515-285-1190	Jim Louvau	Des Moines IA
Intelec BBS	516-867-4446	Cliff Watkins	Freeport NY
The Lansing FORUM	517-337-0624	Tracy Graves	East Lansing MI
The Rec Room	517-641-4329	Gary Berg	Bath MI
The Wizzards Inn	601-328-2278	Robby La Farge	Columbus MS
The Wishing Well	601-638-7056	Vic Parrish	Vicksburg MS
Phoenix Connection	602-431-9334	Richard Ramsey	Tempe AZ
DEUS EX MACHINA	602-439-8070	Pat Cuccurello	Phoenix AZ
Roger's Toy BBS	602-458-3161	Roger Baune	Ft Huachuca AZ
The Hometown BBS	602-458-8342	Robin Moore	Sierra Vista AZ
Excalibur's NYC BBS	602-459-4753	Ed Medina	Ft Huachuca AZ
Micro City	602-459-8196	Michael Kerr	Sierra Vista AZ
Dave's Mailbox	602-747-1269	Dave Daniel	Tucson AZ
PCCA BBS	602-885-4004	Ken Salois	Tucson AZ
Bigfoot's RBBS-PC	602-886-7943	Gene Lowry	Tucson AZ
The Tiger's Den	602-996-0078	John Gillett	Phoenix AZ
The Outer Limits	603-424-4915	Harlow Campbell	Merrimack NH
Celestial Woodlands	603-497-8163	John Croteau	Goffstown NH
PC Host	603-529-1948	John Mosson	Weare NH
The BallPark BBS	603-882-2099	Pat Vallier	Nashua NH
Hellfire Club BBS	606-271-0570	Chuck Baker	Florence KY
Ashland Connection	606-329-1881	Mike Pugh	Ashland KY
The Swiss Bull BBS	608-325-7994	David Blum	Monroe WI
The RTC-BBS	609-654-0999	Terry Rossi	Medford NJ
Odyssey BBS	612-832-5127	Stan Hirschman	Edina MN
MARDUK II	614-268-4446	Stuart Crane	Columbus OH
Cross-Fire BBS	614-294-5336	Bob Wiley	Columbus OH
MARDUK V	614-445-6715	Steve Arnett	Columbus OH
MARDUK III	614-457-1701	David Pointer	Upper Arlington OH
The Ozone	614-466-1136	Terry Dawson	Columbus OH
RadioLink I	614-766-2162	Steve Craver	Columbus OH
Compu-Link	614-846-1274	Chris Bugosh	Columbus OH
The Computer Room	614-861-8377	Marshall Thompson	Pickerington OH
MARDUK IV	614-875-3552	Bill Wilt	Grove City OH
Microtech II BBS	614-878-9108	Chuck Smith	Columbus OH
MARDUK	614-882-4478	Mark Lynch	Columbus OH
Colossus	614-885-9829	Craig Wright	Worthington OH
Chef's Pantry	614-898-0429	John & Jean Hores	Columbus OH
The Commo Bunker	615-245-1364	Joe Byrd	Kingsport TN
The Byte Board	615-878-7147	Larry Hayes	Bristol TN
Data-Comp BBS	615-982-6537	Rickie Bellitz	Maryville TN
The Evans BBS	616-754-6180	Harry Moyles	Greenville MI
NewWorld Magic 1	617-595-5626	Hal Duprie	Swampscott MA
Family Historian	619-279-5746	Gary Heldbrink	San Diego CA
The General BBS	619-281-5538	Marc Teltier	San Diego CA
Programmers Workshop	619-284-0799	Toni Clark	San Diego CA
Interface	619-297-7733	Earl Carey	San Diego CA
T & L BBS	619-342-1647	Tom Alford	Indio CA
Data Works	619-423-9352	Mike Wheelock	Imperial Beach CA
SW/SE Connection	619-467-0335	Al Bruner	San Diego CA
Tierrasanta HamNet	619-560-7659	Brian Steward	San Diego CA
Pacific Rim Info	619-560-7713	Brenda Donovan	San Diego CA
Foy's Trading Post	619-562-3646	Dave Foy	Santee CA
The Great Escape	619-775-3930	Ed Ohlson	Indio CA
The Academy BBS	701-228-2908	Gleason Sackman	Bottineau ND
Connect! BBS	703-670-5037	Kelley Smith	Dale City VA
The XT Connection	703-963-2460	Jeffrey Boyd	Richlands VA
Nordic Computers INC	707-422-6057	Bill Neal	Fairfield CA
The Midrange System	708-439-9679	David Gibbs	Mt Prospect IL
Fathers - Equal Rts	713-376-4767	Dave Funk	Houston TX
Far Point Relay BBS	713-463-8324	Bill Potter	Katy TX
The StarGazer BBS	713-470-8987	Danny Wofford	LaPorte TX
CODE 4	713-487-8040	Terry Day	Houston TX
The Late Show! BBS	714-359-5624	Terry Moore	Riverside CA
Christian Info Xchg	714-531-3834	Mike Wallace	Fountain Valley CA
The Otter Limits	714-531-6802	Darren Hanson	Westminster CA
F.O.G.	714-638-8353	Jim Ward	Garden Grove CA
Ol'Codger's BBS	714-639-1139	Warren Bonner	Orange CA
The BodyShop BBS	714-830-5759	Phillip Williams	El Toro CA
The Bridge Builder	714-838-8127	Brad Pontious	Tustin CA
Cloak of Illusion	714-871-0897	David Steever	Fullerton CA
Source for Source	716-328-3405	Eric Vanriper	Rochester NY
Silicon Metropolis	716-398-3118	Ed Borghi	Farmington NY
The Private Exchange	716-436-2759	Jerry Seward	Rochester NY
Uplink Rochester	716-442-8144	Phillip Dampler	Rochester NY
Interstellar Systems	716-554-5372	Ruthie Hoffman	Middlesex NY



# BOARDWATCH MAGAZINE

## List of BBS Participating in SaudiNet

TITLE	TELEPHONE	SYSTEM OPERATOR	LOCATION
Emergency Hotline	717-566-3500	John Bixler	Harrisburg PA
The Ozone Layer	802-879-4753	Bill Boyd	Williston VT
Keep It Simple	803-648-0283	Ed Riddpath	Alken SC
CSRA Saudi Net	803-649-9612	Paul Williams	Alken SC
Periscope BBS	803-650-9022	Walt Mayo	Myrtle Beach SC
Schrodinger's Catbox	803-652-3760	Terry Buyers	New Ellenton SC
Charles Towne BBS	803-763-4657	Robert Sayre	Charleston SC
The Squad Room BBS	804-499-2077	Joe Curran	Virginia Beach VA
Rosamond Astronomical	805-256-0534	Ralph Wald	Rosamond CA
The Lighthouse BBS	805-272-1812	Larry Evans	Palmdale CA
Marshall's Maze BBS	805-948-1941	Verlin Marshall	Lancaster CA
ENTREvous II	813-542-5482	Dan Lima	Cape Coral FL
The Gold Coast	813-625-5636	Sydney Marcus	Punta Gorda FL
American Red Cross	813-629-8789	Paul Kasper	Port Charlotte FI
Byte Size Bits	813-675-8812	Jean Prophet	LaBelle FL
The Ranch House	813-743-5797	Paul Kasper	Port Charlotte FI
Jos' Lounge	813-755-0575	Steve Joselson	Bradenton FL
archonRAINBOW	813-939-3394	David Cirrhell	Fort Myers FL
AquaFlight	813-939-5258	Mark Mantel	Fort Myers FL
Southern Systems BBS	813-977-7065	Talley Ragan	Tampa FL
OverBoard BBS	815-234-2346	Robin Miller	Stillman Valley IL
The Eagle's Nest	815-282-9248	Steve See	Rockford IL
RiverCity BBS	815-434-4430	Bill Franklin	Ottawa IL
UNCLE SPIKES PLACE	815-633-1558	Mike Dunaway	Machesney Park IL
The Silver Dragon Inn	815-633-6455	Roy Feltner	Loves Park IL
Outlaw Tech Zone	815-654-9729	Mike Pollmann	Rockford IL
Bear's Lair	815-962-6379	Gary Herbert	Rockford IL
BenNET1	816-228-3204	David Bennett	Blue Springs MO
Translent Technologies	816-241-8896	Joe Taibi	Kansas City MO
SOLO-QUEST BBS	816-322-4547	Lanny Conn	Belton MO
Sound Advice BBS	816-436-1618	Roy Timberman	Gladstone MO
The Dog House	816-734-4732	Scott Lent	Kansas City MO
The BullPen BBS	816-746-4747	Brad Riley	Parkville MO
Rampart General BBS	816-761-4039	Mike Reardon	Kansas City MO
METAL ROAD BBS	816-796-3330	Scott Huntsucker	Independence MO
Bill's Try BBS	817-526-2941	Bill Brooks	Killeen TX
The Unicorn BBS	817-666-5137	Bob Brown	Lorena TX
The Mule Barn	817-756-7565	Bobby Posey	Waco TX
Palindrome BBS	817-776-7027	Terry Bilderback	Waco TX
The Private Ear	817-776-9877	Fred Horner	Waco TX
The Fissure BBS	817-857-4241	Dean Elliot	Lorena TX
FutureTech RBBS-PC	818-359-1935	Dean Richards	Monrovia CA
Lysistrata InfoNet	904-244-4637	Rob Buckman	Ft. Walton Beach FL
The Flame BBS	904-286-5125	Charles Thompson	Panama City FL
The Pipeline	907-345-0147	Gordon Rasnick	Anchorage AK
The Bad Lands BBS	912-247-6977	Andy Smith	Valdosta GA
Computer Specialties	913-236-6530	Bruce Heck	Shawnee Mission KS
The Golden Key BBS	913-262-3796	DuWayne Odom	Kansas City KS
Cosmix Station	913-422-1025	John Rickey	Bonner Springs KS
NesByte BBS	913-441-3420	Larry Nesbitt	Bonner Springs KS
The Software Connection	913-478-9642	Mike Ortiz	Topeka KS
3-Times-7	913-599-6206	Kevin Johnson	Overland Park KS
South Of The River BBS	913-642-7907	John Schnake	Overland Park KS
Camelot II BBS	914-677-5890	Richard Shankman	Millbrook NY
Electronic Mail	914-783-0992	Anthony Grillo	Monroe NY
NightLine I	916-362-1755	Rick Hight	Mather AFB CA
Eclipse	916-725-0674	Paul Dyer	Orangevale CA
Sirus System BBS	916-725-8578	Brian Horton	Citrus Heights CA
Time Traveler 1	916-739-6323	Ralph Scowden	Sacramento CA
Amber Shadow	916-742-5501	Dave Overton	Marysville CA
Dynamix BBS	916-791-3321	Travis Fabian	Roseville CA
Commodore CRC Link!	916-791-4298	Gary Lindenschmitt	Roseville CA
Paul's BBS	916-983-6282	Paul Loyd	Folsom CA
LightSpeed BBS	918-495-1341	Scott Carr	Tulsa OK
Brainwash Yourself	918-585-5992	Seth Martin	Tulsa OK
Outpost Remote BBS	918-622-1066	Paul Prag	Tulsa OK
Computer Hospital	918-627-6926	Ed Grinnel	Tulsa OK
Anawah Mission	918-775-9102	Frank Cooke	Sallisaw OK
PreRapture BBS	919-286-3962	Steve Winter	Durham NC
MNML BBS	919-326-6613	Rory Starkweather	Hubert NC
The Right Choice	919-447-7211	James Brodie	Havelock NC
The Medical Forum	919-455-1075	Shelley Finley	Jacksonville NC
Opus Supply Central	919-670-2846	David Barlow	North Wilkesboro NC



One item catching our eye was their Chiplink product. The Personal Chiplink version requires an annual fee of \$11.50 and a per return fee of \$15 to allow you to send in your tax return electronically to the IRS via a service operated by Nelco [(414)337-1000].

Chiplink essentially takes the data directly out of your TurboTax data file, formats for IRS submission, and dials the Nelco online service to submit the return electronically. Alternatively, you can save the resulting file to disk and mail it in. In either case, you have to mail an IRS FORM 8453 anyway so the convenience of all this is a bit lost on us. But this electronic filing method seems to be catching on. It is limited to those expecting refunds and there are other restrictions such as the number of dependents, number of other sources of income, etc. The IRS loves it and it does seem to speed the process a bit.

One element of complaint evident among callers to their BBS. Chipsoft charges \$75 retail for Personal 1040. It is widely available at discounters such as Soft Warehouse and Software etc. for as little as \$39.95. The latest versions allow you to import data not only from last year's version of TurboTax, but from Andrew Tobias's Managing Your Money and the ever popular Quicken financial packages as well. It would appear that TurboTax is showing as the leader in income tax preparation software. Good tax package - barely competent BBS. Chipsoft Inc., 6330 Nancy Ridge Road, Suite #103, San Diego, CA 92121; (619)453-8722.

#### DESERT STORM RADIO CONNECTION

The media has gone crazy with Desert Storm. Everyone is looking for a war angle - to the point it may grow tiresome. And every online service in the world is jumping in trying to make some connection with the war to get some press for their service, product, or whatever. We've heard some outlandish claims from a variety of vendors -

selling thousands of widgets to our troops in the field. We expect to see a press release on Tupperware communicating with Kuwait by smoke signals any day. Support the war effort, buy more ice trays.

In addition to GENie's Letters from Home program (LETTERS), CompuServe now has a Gulf update area complete with GIF weather maps of the Gulf (GO GULF). Even Prodigy has gotten in on the act with a grandiose and much pumped program essentially to remove their advertising panel from their Gulf news areas. Wow! USA Today and the Wall Street Journal both thought that was very impressive - running extensive stories lauding the good citizenship of Prodigy. Kind of overwhelms the debate about their Brown Shirt e-mail tactics and their current subscriber hemorrhage to GENie doesn't it!

But there are some interesting elements remaining. Specialist 4th Class Jeff Lewis was stationed at the MARS station in Fort Lewis Washington. MARS is Military Affiliated Radio System. Every major base I was ever on had a MARS shack. About all I ever knew about them was that they allowed servicemen to call home for free on holidays by setting up links with HAM radio operators in the United States who patched them through to the telephone system. You had to say "over" a lot and the connection was a bit noisy but they always had good coffee for some reason. They are not the radio service the military uses to communicate. They pass health and welfare information for the military through a network of amateur HAM radio operators. It's actually something of a backup or auxiliary radio system manned by official military HAMs if you like.

Lewis, stationed at Fort Lewis, about 15 miles south of Tacoma Washington, had a dream of putting together a BBS system for the troops. He wanted to set up an 800 number toll-free BBS where people could enter messages to servicemen. The messages would go out by radio to the MARS in

Saudi and be printed there for delivery to the servicemen via the regular military postal authorities.

Apparently a very bright and resourceful young man, he persuaded one company to donate a couple of Hewlett Packard PCs and another a copy of Major BBS software to get the system up. He contacted MCI and they immediately donated an 800 number for the service.

Chuck Verdon is Station Chief for the Ft. Lewis MARS station - actually one of the larger MARS termed a Worldwide Gateway Station. The MARS can transmit on the HF bands at up to 3000 watts. The BBS actually operates under the auspices of the Fort Lewis Amateur Radio Club W2USA. Callers may enter messages of up to 35 words to servicemen stationed in the middle east. The messages are transmitted as data to the MARS in Ft. Detrich, Maryland, and from there to Germany and finally Saudi Arabia. The messages can take up to 72 hours by radio and in Saudi they are turned over to the APO mail authorities. We understand they are pretty badly backed up and it can still take up to ten days in country for the message to get through. If that sounds bad, street mail from the U.S. to Saudi is running a little over 30 days. As of the first of February, Christmas mail was just arriving. Apparently, mail is moving to the troops at a staggering pace. U.S. News and World Report indicated that the current load is about 1.5 million pieces per day - compared to a high of 800,000 pieces during the peak of the Viet Nam war.

The concept was an immediate hit. Opening up on February 2nd, the system passed 200 messages in the first four days of operation.

Jeff's Desert Storm Message Center operates today at 800-955-1249. The interface is not overwhelmingly intuitive and not all the menu options were active when we called (a few days after it went up apparently). But it provides another free channel to get messages



over to the troops quickly. We thought enough of the idea to stop in and drop a note of thanks to SPC Jeff Lewis, 545 96 6477, 724th Transportation Company, c/o 383rd Quartermaster Battalion, Operation Desert Storm, APO New York, NY 09734. Since he himself received orders and left for Saudi during the third week in January, before he could actually see his dream in operation, we thought it appropriate he should get some mail via the channel he built for others. We hope you will too.

### **P&A BBS - ENGLISH LANGUAGE IN JAPAN**

Ten years ago, Patrick Hochner was living in Alsace France with a new found passion for the game GO. He traveled to Japan to study the game seriously, met a Japanese woman named Akiko, and he's there still. He and his wife translate technical manuals for Japanese computer, printer, and consumer electronics companies into French and live in Tokyo.

To help transfer data, he set up a Wildcat! BBS system in Tokyo at 81 425 46-9143 titled P&A BBS - Pat and Akiko. Other expatriots living in Japan discovered the system, along with a number of Air Force people from a nearby base, and today Pat's receiving about 90 calls daily on his two-line system. He reports that the Japanese telephone system is actually quite good, and our connection to his system would tend to confirm that. Most BBS in Japan present data in Kanji, which while you can dial them, you cannot decode the Japanese characters without special hardware. Pat tells us most computers over there are NEC models that do support the two-byte Kanji codes, although Toshiba makes a laptop they call the Dynabook that does as well. We found a number of interesting files on Hochner's BBS, including a new beta of LHARC that was less than a week old. Patrick and Akiko Hochner, 302 Bellwinds 1367-23, Nakagami Akishima, Tokyo 196 Japan.

### **AMERICAN INDIAN ART BBS**

Cynthia Denton and her husband are school teachers in Hobson Montana. They joined Frank Odaz's efforts to bring the online world to small schools across the state by serving as modem "circuit riders" under the Big Sky Telegraph program to teach use of online technology to schools in their area. They also share an avid interest in American Indian and Western art and in fact, run a small art supply store.

Teaming up with Dave Hughes, of Old Colorado City Communications, they've set up a BBS in Hobson using Remote Access software and a single rural telephone line. The Russell Country BBS at 406-423-5433 is named after the famed western artist, C.M. Russell. The system offers several unique features we thought you should hear about.

Dave Hughes has had NAPLPS on his mind for at least the past eight years. NAPLPS stands for North American Presentation Level Protocol Syntax for graphics. It is not only a published standard, but it's actually part of the presentation layer of the Open Systems Interconnect (OSI) standard. As such, you would think it would have gained some ground over the past decade that it's been bouncing around. In some ways it has - Canada's ALEX online service uses NAPLPS and Prodigy uses a proprietary variant of NAPLPS close enough to the original that you can view many Prodigy frames using a NAPLPS terminal program.

And there's the rub. There have not been any real tools for NAPLPS available to the public at low cost. Terminal programs have typically run about \$150 and had little utility outside of NAPLPS systems. Frame creation programs were even worse - until recently costing about \$800.

Hughes recently located a shareware NAPLPS terminal program titled CTLink. CTLink is actually a tri-standard terminal program incorporating an ASCII

modem, a Minitel mode for use with services using the crude Minitel mosaic graphics, and an ALEX/NAPLPS mode for displaying true NAPLPS frames. The shareware version of CTLink version 2.00 is available from CTL Communications, Inc., 611 Broadway, Suite 430, New York, NY 10012; 212-979-8553.

The program is a bit awkward to use, but you can freely change between the various modes and does display NAPLPS graphics. This provided Hughes the tool needed to present graphics online. The group enlisted the aid of Frank Odaz and the state of Montana to donate three copies of the Microstar Graphics Editor - a NAPLPS frame creation package, to the project. And the Russell Country BBS set out to present something a bit different to the online world - Native American Indian Art online.

Montana has a number of Indian Reservations, including the 2.9 million acre Fort Peck Reservation, the 2.2 million acre Crow Reservation, the 650,000 acre Fort Belknap reservation, and Rocky Boy reservation. These reservations house American Indians from the Crow, Sioux, Chippewa Cree, and Assiniboine tribes.

Many of the native Americans on these reservations are fairly accomplished artists. The group held a seminar to teach some of these artists how to use NAPLPS frame-creation software and a mouse to create online expressions of American Indian art. The results are displayed on Russell Country BBS for all to see.

The art is an experiment in "share-art". You can dial in and view the art online or download it for later viewing. If you keep the frames, you're encouraged to send a \$25 "registration fee" to the BBS and after taking a 15% commission, the Denton's pass the fees on to the respective artists.

To view the art, you do need a NAPLPS terminal program. Fortunately, one is available for



download from the system titled CTLINK.EXE - a self-extracting ZIP file containing the CLink terminal emulation program. So to view the art online, you must first dial the system, download and install CTLINK, and then dial back in to view the art.

The system is actually quite informative with biographies of the individual artists, some information about their tribes and reservations, and of course the art frames themselves. Gina Ryan, for example, is a Sioux Indian from Fort Peck Reservation. Her *Sioux Pipe* piece was distinctly Indian. Courtney Stewart is a member of the Crow tribe. Originally known as the Absaroka, meaning children of the large beaked bird, the sign language denoting the Absaroka was mistaken by white traders as representing the crow, and so they came to be known. Courtney presents a colorful family design of a Crow Indian named Iron Belly. Henry Webster of the Rocky Boy reservation presents a colorful frame of a drum with feather.

We found the frames a bit spartan generally. And NAPLPS has some problems to overcome if it is to become a BBS graphics standard. Generally, if you take a hit by line noise while the file is transmitting, it will most thoroughly hose up the screen. Dave Hughes is a fan of the animative nature of NAPLPS and has done quite a cowboy poem online that is quite complex. Or we must assume so. We tried four times to view it, had to reboot our machine twice, and never did really see what it was about. When it does work, there are significant delays before the frame is painted on your screen.

The CTLINK.EXE file also had some problems. If you try to run CTLINK.EXE, its first order of business is to attempt to extract one of its component files - also named CTLINK.EXE. In doing so it attempts to overwrite the transmittal file CTLINK.EXE and well, we just have a few too many CTLINK.EXE files going on here.

Download CTLINK.EXE, rename it to NAPLPS.EXE or some such, and then run it.

Experiments in online technology always have some problems. We could all be safe and sound at 300 bps using teletypewriter emulations. It is the pioneers who open up new territory online and we think Denton's system qualifies in this respect. We would encourage them to rename the CTLINK.EXE file, put up a wider selection of art frames online, and offer an MNP or V.42bis connection to cut down on the line hits, and consequently the aborted frames. As they work out these problems, we could easily see Russell Country BBS becoming a focal point for creative western art expression online. If nothing else, it is fun to experiment with NAPLPS. Russell Country BBS, Box 359, Hobson, MT 59452

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## CRAZY MERL AND THE PHONE COMPANY

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By M. Peshota

It was nearly four and Crazy Merl's lawyer still hadn't found anything in his law book defining a business by how hard people jab the push-buttons on their phone when they call it. "We have a lot of IF/THEN decisions pertaining to just cause for daisy-chaining phone company executives to the back of a pickup and dragging them through a field of mush melons," he muttered, flipping through the book. "But I don't see anything about the stress tolerance of pound buttons."

The amazing thing about Ackton Denebrie was that you always thought you were squandering your money on a complete incompetent until the final decisive moments of a legal wrangle when his genius would spring out in front of the courtroom and sing a passionate plea for his client not to be sent to the gas chamber. Unfortunately, since the computer bulletin

board operator was rarely in danger of being sent to the gas chamber, as he employed Ackton to handle mostly more mundane things like his mortgage, his explorations of the judge not to send his client to the gas chamber were usually more of an embarrassment than anything else.

"Maybe if we cop a NOP plea, the court will show mercy," the computer law attorney jibbered. In just 17 minutes a representative from the phone company was coming to seize Crazy Merl's basement for failing to pay a \$1,257,762.32 phone bill. He was seizing not only the computer Merl used to run his computer bulletin board, but his entire basement.

"I'm sure we can find a looping conditional so you can at least get visitation rights," Ackton mused absently, now flipping through a programming manual.

The trouble started when Merl got a phone bill charging him \$3,531 for Touch Tone service. When Merl called the phone company to ask about the charge, he was told that it was not a mistake, that the phone company was in fact billing him \$3,531 for Touch Tone service. This was because, the phone company official claimed, that Merl's computer bulletin board was a business and businesses are always charged more for phone service than regular people.

When Merl asked why businesses are charged more for phone service than regular people, the official told him that it was because people tend to punch the buttons on their phones harder when they call a business than when they place other calls. They stab them when they call businesses, whereas they just tap them lightly when they call residences. Business calls, consequently, result in more wear and tear on phone company equipment than personal calls.

When Merl protested that his computer bulletin board wasn't a business, but a hobby--a hobby with which he in fact lost a great deal of money each month, the official



## BOARDWATCH KEEPERS OF THE LISTS

TITLE	TELEPHONE	AREA COVERED	COMPILERS	LOCATION
SOCAL Corner	(213)422-7942	Southern California BBS List	Mike Heffernan	Los Angeles, CA
lgnp1	(215)348-9727	nixpub List of Open Access UNIX Sites	login:guest	Doylestown, PA
Black Bag	(302)731-1998	List of Medical Issue BBS Systems	Edward Del Grosso	Newark, DE
OASIS	(404)627-2662	Home of OAS Atlanta Bulletin Board List	Robert Orr/Online Atlanta Soc.	Decatur, GA
INDEX System	(404)924-8472	INDEX Atlanta Bulletin Board List	Rodney Aloia	Marietta, GA
Deep Thought	(512)244-1598	Home of Central Texas Sysops Assoc. BBS List	Central Texas Sysops Assoc	Round Rock, TX
P.D.S.L.O.	(516)938-6722	Home of THE LIST National BBS List	James Toro	Hicksville, NY
Interconnect	(703)425-2505	Home of Focke's Washington DC Area BBS list	Jeffrey Morley/Mike Focke	Washington, D.C.
Stillwaters	(708)403-2826	Home of Stillwaters Chicagoland BBS List	Colby Jordan /Peter Anvin	Orland Park, IL

If you would like your specialized BBS list included, you may register online by dialing (501)444-8080.

laughed. "Anytime people are jabbing the buttons of their phone to call you, you have a business." Merl tried to explain that nobody was jabbing phone buttons to call him because they were calling with their computer modems instead, but the phone company official was already getting mad.

For several days, Crazy Merl remained quietly apoplectic about the \$3,531 phone bill. He tested his phone many times to see if he jabbed the buttons when he made business calls, but as far as he could see, he didn't poke them any harder than when he dialed friends. It was all because he had a computer on the phone line, he finally concluded. Phone companies don't trust computers on the phone. They are like the confidence man who instinctively mistrusts anyone who can talk faster than he can.

Crazy Merl didn't say anything to anyone about the \$3,531 phone bill--or the threat from the phone company to shut down his bulletin board if he didn't pay it--but it wasn't long before callers to his board found out. They found out everything, even when you didn't tell them. You couldn't keep any secrets from them. They were as omniscient as neighborhood busy bodies.

His board's callers decided to organize a protest of the phone company. Merl suggested they "write gracious, respectful letters of complaint to various government reg-

ulatory agencies," but they weren't interested in gracious letters. Before he knew it, they were talking about cluster bombs and tanks and napalm and various other utensils of war. He pleaded with them to temper their outrage, but before long his board's callers appeared on the local news chained to a telephone switching center, wearing gorilla masks and various articles of clothing painted with names of telecommunications software that sounded like computer-encoded threats of civil disorder, and the phone company became even more angry. They found many other things to bill Crazy Merl for.

These included: \$491,025.75 for "Foreign Bit Toll" (The Foreign Bit Toll, the phone company explained, is applied to all computer data bits that come from out of state. It is necessary because these bits must be carefully screened by phone company switching equipment for livestock disease.); \$287,086.22 for "Fiber Optic Puncture Fee" (The Fiber Optic Puncture Fee is applied whenever Xmodem files are sent out over a fiber optic line too fast, the phone company said. An analogy would be of a swimmer scissor kicking too vigorously in a swimming pool. If they're not careful, they may puncture the swimming pool's lining, and that is precisely what happens when computer files are sent ricocheting too recklessly through a fiber optic strand, as computer files are wont to do.); \$76,003.81 for "Computer Chat Mode Special Service Surcharge" (This is levied

on anyone who pretends to be a party-line when they are not. "If I pretend to be call-waiting, will I be charged a call-waiting tax?" Merl had asked. The phone company official said that he would, that he had better not even think about it unless he was prepared to pay that fee too.)

Only four minutes remained until the phone company arrived to seize his basement for refusing to pay these fees. Crazy Merl felt an awful dread as if something near to his heart was about to be ripped away. He wondered what it would be like to be a man suddenly left without a basement.

Ackton mumbled on, "If we branch this logical operator over to this district court, then plaster this address register with fuzzy logic subpoenas..." Sometimes it scared Merl to hear his lawyer talk this way, to hear him so effortlessly meld the vocabularies of two equally dangerous professions--computer programming and the law. Sometimes he wasn't sure whether Ackton was talking about his legal problems or a batch file.

The phone rang.

The two men looked at each other in astonishment. The phone had been disconnected weeks before.

Merl picked it up.

A starchy voice on the other end blatted, "Mr. Merl, I would like to inform you that the phone com-



pany has decided to let you keep your home computer. And your basement and other peripherals as well. We were quite touched by Mr. Denebrie's plea not to send them to the gas chamber. As you may have guessed from dealing with us, we are not a company completely immune to the spell of mawkish legal histrionics." Before Merl could respond, she signed off, "Thank you for using Numagoo Bell, Your Link to Today's Technology."

Merl returned the phone to the receiver, dumbfounded.

Ackton clicked his briefcase shut with a quiet jubilation. "By the way," he said, "I finished the papers to secure that patent on your mortgage. They're ready for you to sign."

Merl murmured thanks, as the pocket protector adorned lawyer departed up the basement stairs. It wasn't until a few minutes later when he muttered, "A patent on my mortgage?" He sometimes wondered why he let a computer law attorney handle all his affairs.

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## DR. FILE FINDER

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### SHAREWARE FOR GAME AFICIONADOS - COMMANDER KEEN

by Mike Callahan

Wandering around "The Wires", I've found some really interesting utility programs, communications utilities, new applications programs, a few database programs, and quite a bit more. But after nine years testing and evaluating software, a title has to be either very good or very different to catch my attention. This month, we'll examine a game program -- actually a trilogy of games, and not only are they good they're different as well. Certainly unlike anything I've encountered in Shareware before.

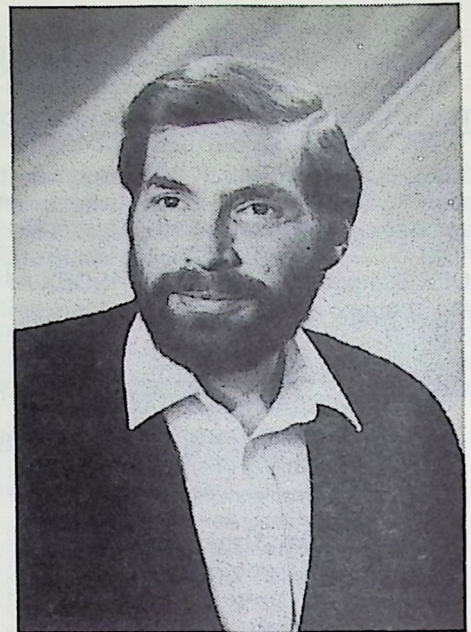
The name of the game is "Commander Keen" and it sets a new standard for Shareware games.

### The Apogee Phenomenon

"Commander Keen" is a product of Scott Miller, founder of Apogee Software. Scott, who is now 29, founded Apogee three years ago. Scott's been programming since 1975. Traditionally, games have not done well in Shareware. By the time most users get around to registering a program, the novelty of the typical game has already worn off. But Apogee Software has logged thousands of registrations. I talked with Scott Miller about his marketing techniques. This is what he had to say.

"I started out with three games, the KROZ series. I decided that I wanted to try something a bit different in the way of marketing. I released the first volume of the game as Shareware and held the other two back. When a user would finish the game they'd get a message saying that if they liked the game they could get the rest of the series directly from me. I've found that nearly 99% of the time most people order an entire series of games -- very few people order just one game. I also try to give people a good deal. For example, I always give discounts when someone orders an entire series of games, like with the Keen games. They sell for \$15.00 each, but if you buy all three together, it only costs \$30.00 and that's a \$15.00 savings. One other thing that I do when people order is to send them out disks with volume 1 of all my other games. It gives them a chance to try them out and they're free. People like that. Most of all, I try to provide quality games at a fair price."

In the past Scott has done quite a few ASCII text games, including "Pharaoh's Tomb", "Monuments of Mars", three volumes of "Star Trek Trivia", a total of seven KROZ games, and several other popular games. These programs are all very well done and I discussed some of them in the games chapter of "Dr. File Finder's Guide To Shareware" published by Os-



borne/McGraw-Hill. With the "Commander Keen" series Scott has not only outdone himself, but everyone else as well. You really have to see it to believe it!

### The Basic Story of Commander Keen

Commander Keen, known to his parents as Billy Blaze, is an eight year old genius who constructs a space ship out of old soup cans, rubber tubing, and glue. He uses a few things from around the house to finish it off. A joystick for navigational control, a battery for the electrical systems, a vacuum for an ion drive, and some of his Dad's liquor for fuel. Keen sets off to explore Mars while his parents are out for the evening. When he goes to leave Mars he finds that the evil Vorticons, who plan to invade the Earth, have stolen some essential parts of his ship. Namely the joystick, battery, vacuum, and liquor. He's marooned! This is where the first volume of the Keen series begins. In order to return to Earth, young Keen must search the cities and mountains of Mars and get back the things that the Vorticons have stolen and hidden from him. Not an easy task -- the mountains are NOT empty!



In pursuit of the missing pieces of his ship, Keen encounters some interesting -- and dangerous, characters. He encounters the sometimes TOO friendly one-eyed Martians. The two-eyed Martians on the other hand will kill you the first chance they get. To earn points you grab treats like balloons, candy bars, pizza slices, pieces of cake, and even teddy bears - each with different point values. For each 20,000 points you earn an extra Keen. You'll need to pick up ray guns in order to fend off the less friendly Martian residents.

Some diabolical traps have been placed by both the Martians and the Vorticons. You'll have to jump pits filled with fire, hop over poisonous plants, and more. If you can find a pogo stick you'll be able to reach some of the higher ledges. From personal experience I've found that in some areas of game one you'll NEED a pogo to reach certain objects. In games two and three a pogo is a necessity!

The graphics and sound are \*superior\* to anything I've ever seen in a Shareware game. The Commander Keen series requires that you have at least an EGA monitor and of course shows best on a VGA system. The game also requires about 520K of free RAM. The games can be controlled by keyboard keys or joystick. There is a help screen, Scoreboard, and the complete story of young Billy Blaze, aka Commander Keen. Games in progress can be saved and then restarted at a later time.

In addition to the excellent graphics, sound, and color, these games are clever. Navigating through some of the cities and reaching some of the prizes requires some thought. As with many situations in real life, things may not always be what they seem. The impossible may not be -- and probably isn't. There's a hidden city, invisible blocks that you can jump on and -- well, I don't want to give too much away. The point is that these games are challenging and a lot of fun. They are also addicting!

If I'd seen "Commander Keen" running on a screen in a software store I'd have guessed that it was going to set me back around \$60.00. Fortunately, Scott Miller is a Shareware author. As mentioned earlier, if you buy the entire trilogy at one time the price is even lower. Episode one of Commander Keen is widely available for download as #1KEEN.ZIP. Registration is \$15 per game. Scott Miller, Apogee Software, P.O. Box 476389, Garland, TX. 75047-6389; 800-852-5659

### THE LIMITED VISION OF SHAREWARE AUTHORS

by Rob Rosenberger

I recently took part in a discussion about the massive success of Datastorm's Procomm Plus software. Procomm Plus originated as shareware and you can still download a functional "test drive" version from bulletin boards.

Datastorm's success bothers people who use other shareware comm programs. One person I talked to claimed Telix has more bang for the buck, yet it hasn't achieved anywhere near the same success. I said the same thing about my personal favorite, Qmodem. John Dvorak himself has praised both of these applications -- but you don't see Datastorm sweating over it. Why not?

Datastorm earned at least \$5 million in 1990 from Procomm Plus. ButtonWare cleared \$3.5 million with their PC-File program. Magee Enterprises cleared "well over a million" from sales of Automenue. PKware won't admit it but reliable sources put them at seven figures for PKZIP. QuickSoft earns big bucks for PC-Write. Trius expects to break \$1 million in the coming year with sales of As-Easy-As, and Wildcat! may do the same for Mustang Software. The list goes on.

Why do Qmodem, Telix, and other great products languish while shareware packages like Procomm

Plus and PC-File earn big bucks? What separates the men from the boys? *Limited vision.*

Limited vision keeps shareware authors pinned down. PC Magazine publisher Bill Machrone discussed it in a speech he gave to the Association of Shareware Professionals last November. Shareware "grew up" on bulletin boards, so authors see no real difference between the total *online* users (about two million) and the potential *shareware* users (about 60 million).

Limited vision keeps shareware authors from seeing customers unless they sit at the end of a phone jack. Why?

Tom Smith of Datastorm never had limited vision. Marshall Magee of Magee Enterprises corrected his eyesight in time to take control of the DOS shell market. Jim Button of ButtonWare claims to have only just recently figured it out for himself and lost millions as a result of it. (Button's fame as the co-founder of shareware helped carry him most of the way.)

"Aha!" you say. "How can Datastorm look for customers beyond a phone jack if their software needs a modem anyway?" Rough estimates show about 18 million modems in America but, as I mentioned, only about two million see any real use. And those people already use a comm package! Why try to get two million to switch to another program when you can focus on 16 million who don't use one at all ... at least not *yet*.

Button, Smith, Magee, and other major players formed the Association of Shareware Professionals in 1987 to teach others how to sell shareware. ASP meets daily on the CompuServe network (in the SHAREWARE forum of course) where authors trade information in public and private.

ASP boasts two PC Magazine editors among its 300+ author members. It keeps track of over 150 "approved" disk vendors who agree to abide by ethical standards. ASP





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**CRS** CANADA  
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lobbied congress to change a bill threatening the copyrights on every shareware program; congress then spent your tax dollars to fly ASP's president out to represent the shareware industry. ASP runs booths at the COMDEX and PC EXPO conventions where you can meet corporate purchasing agents, the most lucrative customers of all.

A vice-president of the Babbage's chain accepts only ASP member programs for national promotion. Want someone to write a book on your stuff? (Procomm Plus has at least three on store shelves.) David Busch convinced his publishers to write an entire series on great shareware and he watches ASP for new gems to come along.

Many authors see a distinct separation between shareware and retail, but the successful ones see shareware as a *subset* of retail. ASP teaches this to any author willing to listen. Members will give you an honest opinion on your

chance of success and will even recommend specific courses of action ... if you ask.

And yet with all this knowledge and all the industry contacts, only a few shareware authors tap into the ASP. Limited vision prevents others from seeing its true value. A few (members and non-members alike) prefer to bash the organization at every opportunity.

Authors usually cite the cost of using CompuServe as their biggest reason for avoiding the ASP. ASP can usually show them how to *make* money by using CompuServe, but some authors just won't refocus their vision. I myself write them off as a lost cause.

Some cite "restrictive" standards as the reason for staying out. For example, ASP bans crippled shareware but they want to keep this option available should they ever feel a need to stop trusting potential customers. Limited vision keeps authors from seeing

why ASP banned crippleware tactics in the first place. (I'll cover this in a future column. The answer may surprise you.)

A few authors qualify as "outright blind," having failed to even study their retail or shareware competitors. These people expect to make money? They don't know what they got themselves into. I admit it, the Association can't help them much.

But let's get back to Qmodem and Telix for a moment. The authors never joined ASP but they do enjoy a comfortable level of success compared to other shareware authors. They could enjoy *more* success, though: the store shelves can easily bear another, less expensive comm program. A shareware package stands the best chance of success for this if it has already built up a user base. Qmodem and Telix both qualify.

The authors must have some money to assemble an initial load of packages for retail sale. Again,



Qmodem and Telix qualify: they built up their war chests from sales to online users. The rest involves joining ASP and tapping into a warehouse of information larger than most people imagine.

How do potential shareware authors join ASP? If you have a CompuServe account, go to the SHAREWARE forum and browse the files in library #9. If you don't have a CompuServe account, let ASP show you how to open one at a savings. Write to the Association at P.O. Box 5786, Bellevue, WA 98006 and ask for an author application kit. And of course, authors can join before releasing their first shareware program.

Shareware doesn't just mean writing a good program, it means marketing it as well. You have to master the basics if you hope to make a profit in any business. This means learning to see the forest through the trees, for one thing. The Association of Shareware Professionals can help you when it comes to selling software on a try-before-you-buy basis.

[Rob Rosenberger serves on the board of directors for the Association of Shareware Professionals. He's a full-time shareware developer and author of Operator, Qanalyst, and PCFDial along with a book by Paradise Publishing - Shareware - Try Before You Buy Software" - Editor]

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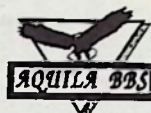
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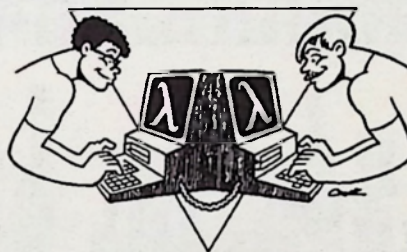
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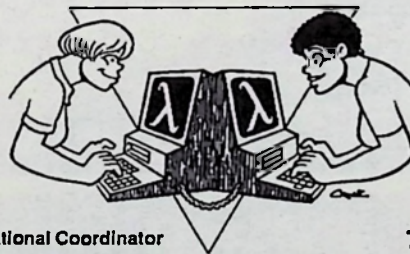
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# BOARDWATCH MAGAZINE

NATIONAL LIST OF ELECTRONIC BULLETIN BOARD SYSTEMS AND ON-LINE INFORMATION SERVICES - MARCH 1991

- Boardwatch Magazine -

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Minnesota SpaceNet	(612)920-5566	Minnesota Space Frontier Society - NASA News	Ben Husset	Minneapolis, MN
NAFIDAC BBS	(804)445-1627	Zenith Computer Support - List of Federal Micro User Groups	Navy Regional Data Automation Center	NAS Norfolk, VA
NASA Headquarters Info Tech	(202)453-9008	Shareware and Technical Info for NASA PC users.	National Aeronautical and Space Admin.	Washington, DC
NASA SpaceLink	(205)895-0028	NASA Educational Affairs Div. - Flight Data/Space History	Marshall Space Flight Center	Huntsville, AL
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